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THE AUTOMOBILE

STEAM SCORES IN ATLANTA'S MEET

BY Percy H. Whiting

ATLANTA, GA., March 27.—Roaring and whistling like a tea-kettle run mad, a Model K White Steamer. driven by "Bob" Lambert, hurled itself up the nine-tenths of a mile of the Stewart avenue hill this afternoon in 45 4-5 seconds, peeling 5 2-5 seconds off the best previous mark and winning the free-for-all of the Fulton County Automobile Club's third annual climb.

A Stearns Six, 1908 model, owned by Ed Inman, president of the club, and driven by A. H. Almand, which was the only other starter, was an entertaining second, covering the distance in the rattling good figures of 48 2-5 seconds, 2 4-5 better than the same driver drove a 1907 Stearns four-cylinder last year, when he won the free-for-all and put a second leg on the Atlanta *Journal's* big cup.

So impressive had been the time trials of these two cars during the two weeks' practice to the climb that they had the free-for-all to themselves. The race was run at the close of a six-event program and evening was closing in before the White got away. With Lambert at the wheel and Stupka cuddled down behind the dash, the car got away to a whirlwind start, reaching full speed in an incredibly short time and keeping or increasing it every inch of the way up the incline. Like the proverbial "lost soul," it whistled and howled, emitting much humming from its burner and most impressive snorts from the exhaust, but its speed seemed to increase even on the stiffest part of the grade and as it charged across the finish line and down the other side of the hill toward Atlanta it was clear that all records were broken.

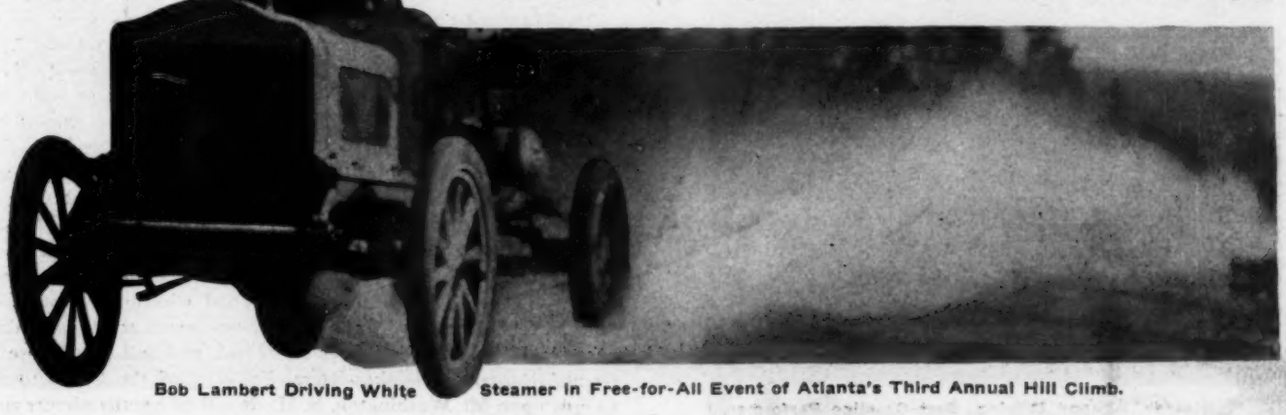
The free-for-all in Atlanta appears to bear a charmed existence; that is, charmed for misfortune. Last year it was marred by a disagreement over the actual time made by one contestant that resulted in much unpleasantness at the time, and afterwards in a row at Atlanta's most exclusive club that occasioned much scandal. This year the timing apparatus, which had stood a hard day's service without an error being charged against it, went "out of whack" after the White Steamer started. The automatic timing "jigger" received the signal that the car was off, but never one that told of its arrival. However, the many watches at the finish, which were used as a check on the official record, caught the White in :45 4-5.

Then followed much wrangling as to whether or not the White should run the race over again. Before the argument was settled the Stearns came up. It was garage gossip that Almand was exploding equal parts of gasoline, picric acid, dynamite, profanity and nitroglycerine in his motor, and certain it is that it sounded like a goodly battery of gattling guns as it popped and flew up the incline.

The official clock, back in running order again, caught the Stearns in 48 2-5 seconds. After this time was flashed there was more argument, but finally Ed Inman, owner of the Stearns, withdrew his claim on the cup, afterward qualifying this withdrawal by protesting the White on the ground that it was not a stock car. This protest subsequently was dismissed by the contest committee.

Aside from this annual "incident," the day was without mar or blemish. The weather, though not sunshiny until toward the end, was warm, and there was little wind. Such efforts as Boreas put forth were directed straight up the hill.

All these things conspired to make the day a perfect one from the spectators' viewpoint, and the onlookers came as never before for a climb in Atlanta. Despite the fact that the hill is nearly two miles from the nearest car line, several thousand people



Bob Lambert Driving White Steamer in Free-for-All Event of Atlanta's Third Annual Hill Climb.

Excellent Guarding of the Course Was One of the Marked Features of the Atlanta Hill Climb.

trudged out to the finish line, and these, with the reinforcements that came in autos and other vehicles, brought the number up to 5,000 at least. As for automobiles, verily, the woods were full of them. They lined both sides of the course, and certainly no such gathering was ever before seen in Georgia, save for the notable exception of the Savannah Grand Prize.

The officials broke all Atlanta records by getting away the first event in good time. This was a motorcycle affair and was followed by the first automobile class, for cars costing $900 or less. From that time forward to the free-for-all it was somewhat of a field day for the Buicks, which were hauled into Atlanta on the tail of the "Florida Flyer" the day before the race. With such old celebrities as Strang and Burman, and with the newest discovery, Dewitt, all fresh from Daytona, they swept away three out of five firsts in the "limited price" classes. A little E-M-F. won in the big second class, covering the hill in 1:08 and defeating a field of ten starters.

Class 3 for touring cars costing $1,500 or less, was a safe victory for a Pope-Hartford. The individual hero of the day was Jones, nicknamed "Daredevil," a local boy, who drove the two winners last named.

Here is the summary:

Class 1 (cars costing $900 or less).—Buick, Travis, 1:15, first; Buick, Cantrell, 1:21, second; Ford, Huie, 1:23, and Ford, Brown, 1:23, tied for third; Lambert, McNeal, 1:49 4-5, fourth.

Stearns, Almand Driving, Best Gasoline Performer.

Class 2 (cars costing $1,500 or less).—E-M-F, Jones, 1:08, first; Buick, Chalker, 1:11 1-5, second; Buick, Travis, 1:14, third; Buick, DeWitt, 1:14 2-5, fourth; E-M-F, Atkins, 1:15 1-5, fifth; Ford, Brown, 1:21 1-5, sixth; Chalmers-Detroit, Smith, 1:22 1-5, seventh; Lambert, McNeal, 1:24, eighth; Ford, Huie, 1:28 1-5, ninth; Overland, Stewart, 1:29 2-5, tenth.

Class 3 (for touring cars costing $3,000 or less).—Pope-Hartford, Jones, 1:04 4-5, first; Pope-Hartford, Stoddard, 1:05 1-5, second; Buick, Burman, 1:08, third; Selden, Woodam, 1:19, fourth.

Class 4 (for runabouts costing $3,000 or less).—Buick, Strang, :58 3-5, first; Stevens-Duryea, Henderson, 1:02, second; Ford, Huie, 1:05 4-5, third; Maxwell, 1:15 2-5, fourth.

Class 5 (for touring cars costing $5,000 or less).—Buick, Burman, 1:04 4-5, first; Pope-Hartford, Stoddard, 1:05, second; Pope-Hartford, Jones, 1:06, third.

Class 6 (for runabouts costing $5,000 or less) called off for lack of three starters.

Exhibition, Buick runabout, Strang, :59.

Class 7 (free-for-all).—White Steamer, Lambert. :45 4-5, first; Stearns, Almand, :48 2-5, second.

White Wins San Francisco Hill Climb.

San Francisco, March 29.—In the hill climbing carnival held here to-day, a 20-horsepower White Steamer made the fastest time of the day. It was barred from stock car events, but a special match race was arranged between it and the winners of the stock races. This it won, its time for the mile being 1:12 2-5.

DATE SET FOR LOOKOUT MOUNTAIN CLIMB.

Chattanooga, Tenn., March 29.—Chattanooga's great mountain climb, up historic Lookout Mountain, has been set for April 22, and active preparations are now being made by the Lookout Mountain Automobile Club for holding the event, and for entertaining the large number of visiting autoists. The contest has been given the support of the Chamber of Commerce of this city, and six handsome trophies have been donated by large social and commercial organizations. The program will include events for seven different classes of stock machines and a free-for-all.

Lookout Mountain stands over 2,000 feet above the city of Chattanooga, and the course will be from the bottom to the summit, a distance of four miles by a road which is replete with hairpin, triple S and W turns. It is pronounced as the most dangerous and difficult climb ever scheduled, and will rival those of Giants' Despair at Wilkes-Barre, Pa., and of the Climb to the Clouds upon Mt. Washington, N. H. It will be equally picturesque.

INDIANAPOLIS HAD A BIG WEEK.

INDIANAPOLIS, IND., March 30.—Local dealers estimate that the number of automobiles sold during the annual spring opening last week had an aggregate value of $450,000. Not less than 300 cars were sold during the week, and of these a large proportion were touring cars costing above $2,000.

The show concluded Saturday night with a banquet at the Denison Hotel. Mayor Charles A. Bookwalter was the guest of honor, and delivered the principal address. Other talks were made by dealers, manufacturers, and their friends.

Under the auspices of the Indianapolis Automobile Trade Association, an egg race and tire changing contest were given Tuesday afternoon, while a parade and an obstacle race were held Friday afternoon. Inclement weather necessitated changes in the program. The results of the various contests were:

Egg Race—Buick, driven by Mr. and Mrs. W. V. Peterson, first, time, 33½ seconds; National, driven by Thomas Kincaid and Miss Mary Aitken, second, time 35 seconds.

Demountable Tires and Rims—Won by Edgar Apperson, driving an Apperson equipped with Diamond demountable tires and rims; time, 1:43.

Clincher Tires—Won by Charles Starr, driving a Premier equipped with Diamond clinchers; time, 2:59.

Detachable Tires—Won by T. K. McCune, driving an Auburn equipped with Goodrich detachable tires; time, 2:09.

Obstacle Race—Won by George L. Bixby, driving a Waverly electric, distance two squares, perfect score; time, 1:06.

Because of rain it was necessary to postpone the parade until Friday afternoon. More than 350 cars were in line, including everything from $500 runabout to a three-ton truck. The Indianapolis Motor Car Company was represented by 50 Rapid trucks that are in daily service in the city. These included the police patrol wagon. The city dispensary ambulance, just completed by The Waverly Co., was also shown for the first time.

There were two bands, both riding on trucks. One of these was a "rube" band in grotesque costumes.

There were 47 Overland cars in the parade, entered by the factory and by the Fisher Automobile Co. These included all of the models manufactured by the company.

The Premier, National, Marmon, and American factories, as well as the Cole Carriage Company, were well represented. Each car was filled with its full quota of passengers, while the commercial cars were loaded with merchandise.

E-M-F Which Scored in Class Costing $1,500 or Less.

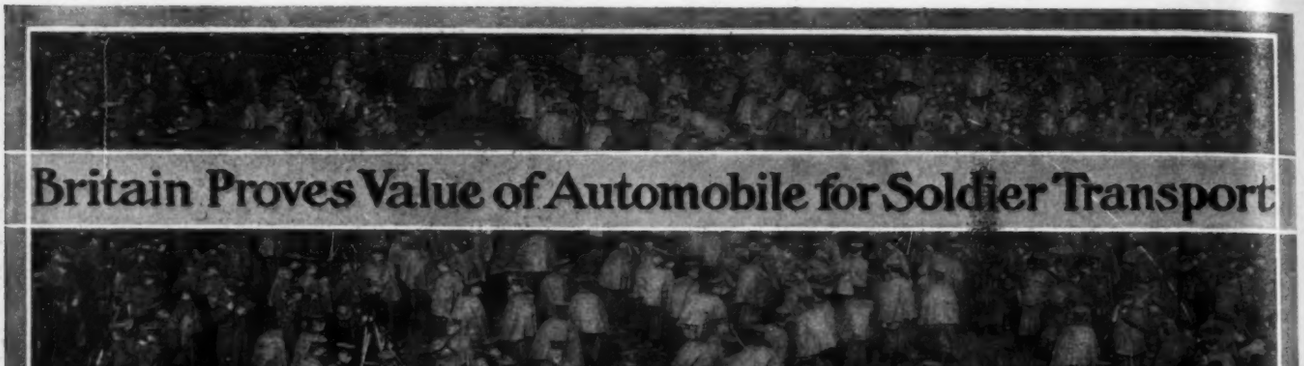
CLEVELAND'S QUOTA FOR GLIDDEN TOUR.

CLEVELAND, March 29.—Cleveland may take an active part in the 1909 Glidden tour, although if the local manufacturers do not display more interest than at present, it is doubtful if the entry list from the Forest City will be overly large. What the Peerless people will do is not yet known, but the general impression is that the Peerless will not be found in the 1909 run. No definite announcement has been made to this effect, however. Nothing is expected of the Stearns, although the influence of Chas. B. Shanks may alter things somewhat. The Winton people are out of all contests, of course, while the Royal is looming up as a dark horse. It is said that considerable pressure will be brought to bear on the officers of the new company to enter the contest.

Entries are confidently expected of the White stemer. Last year the Whites were ready to start for Buffalo when a change in the plans were made. The White people, following their usual custom, will make no formal announcement of their plans, but to see Walter C. White and others in White cars cross the starting tape will surprise no one. At least one entry, that of Paul Gaeth, is assured, and he may increase this. Mr. Gaeth had a perfect score last year, and is in favor of entering again this season. There is a chance that the Studebaker entries, if they are made at all, will be from this city.

There Were Those Who Must Be Exactly at the Finish Line, which, of Course, Was the Storm Center.

Britain Proves Value of Automobile for Soldier Transport



Troops Assemble in Preparation for Overland Journey to the Southern Coast of England.

LONDON, March 18.—To prove the extreme value of automobiles for the rapid transportation of troops in time of war, the Automobile Association yesterday conducted what was probably one of the most important happenings in the history of all England, by conveying a detachment of 1,000 troops, with full stores and equipment, from this city to Hastings, on the South coast, and return on the same day. The presumption was that an enemy had landed, where "William, the Conqueror" put in his appearance 813 years ago, and had occupied the railroad, so that there would have been no quick method of transportation without the use of automobiles.

The War Office showed a great interest in the scheme, and a battalion of His Majesty's Guards was detailed for the experiment, consisting of over 1,000 men, with machine guns, baggage, food and stores, weighing over 30 tons. The automobile trade and members of the Association responded to a really remarkable degree, and actually over 400 cars were assembled, to take part in the wonderful demonstration, not only of the practicability of the machines, but also of the thorough organization of the Association. The big squadron was divided into eight sections, each with a different colored flag to designate the cars, and there was hardly a hitch in the plans for the day. Even the farmers and others on the route, who were requested to refrain from traveling upon the highways, complied with the request, and almost no vehicles obstructed the progress.

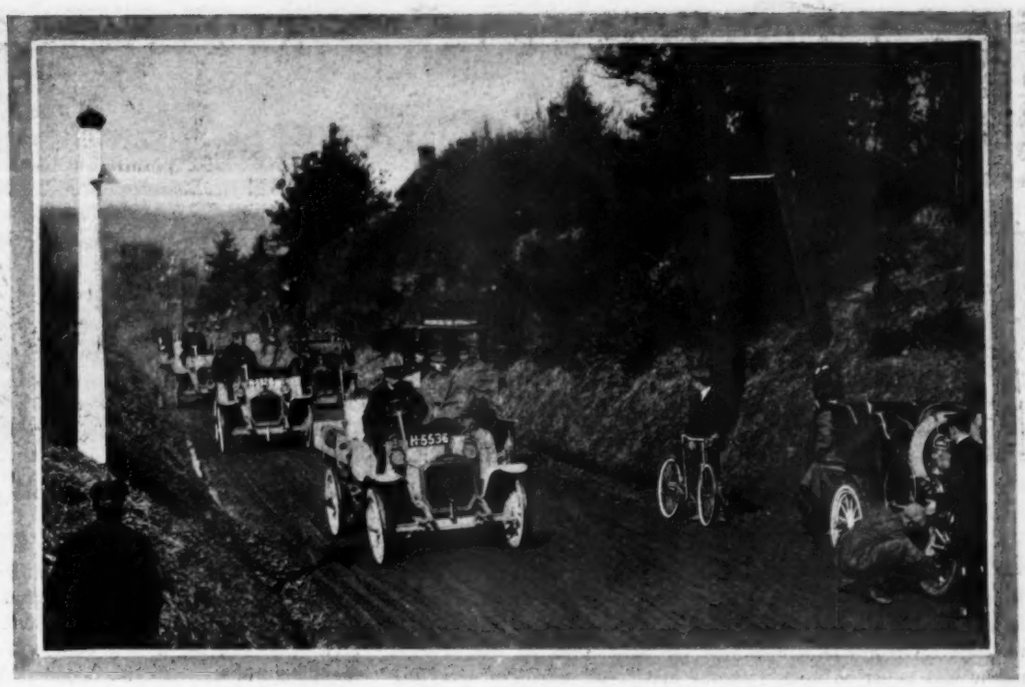
Start of Automobiles from London.

The first section, A, consisted of 12 automobiles, used by Lieut.-Col. Erskine, scouts and headquarters of the battalion; with the commanding officer, his adjutant, signaling officers, and bugler in one of them, and two vehicles were reserved in case of breakdown. Section B consisted of 65 automobiles, carrying two companies of the 1st Scots Guard under Captain Van der Weyer; section C included 66 cars, with Captain J. B. Arbuthnot and two companies of the 2d Scots Guards; section D was also made up of 66 cars, with one company each of the 2d and 3d Grenadier Guards, under Captain Vivian, of the former; section E, 66 cars, with two companies of the Coldstream Guards, under Captain Stewart, completed the division with the main body of troops. Section F was composed of 7 touring cars and 21 light lorries, and was known as the machine gun section, inasmuch as it carried the reserve ammunition, light artillery, personnel, all stores for the first line transports and two water carts, under the command of Lieut. Maitland of the 2d Grenadier Guards. Section G had four touring cars and 7 three-ton lorries (trucks), to carry the personnel and stores of the second line of transports, under Lieut. Barrington-Kennett of the 2d Grenadier Guards. The eighth section was really a free-lance one, carrying officers of the General Staff and other military authorities.

The first preparation for the event was made on Tuesday afternoon, when in 45 minutes 21 light lorries, five 'bus chassis with platform bodies, and three large three-ton vehicles were loaded with the stores, ammunition, etc., at the Chelsea Barracks, and then put under shelter for the night. These machines carried all kinds of impedimenta, such as kitchen utensils, trenching tools, bedding, the commissariat department, besides the guns. The first move on Wednesday, yesterday, morning was made by section G, which left the Barracks at 7.30, and proceeded to a point near the Crystal Palace where mobilization was to take place; joined soon after by sections A, B and C, which left the Wellington Barracks at 8.45, 143 cars being in line. In divisions B and C there were half a dozen empty cars for emergency.

Section D, E, F and the others soon formed and at 9.45 the bugle was sounded for the first car to get under way, the organization being so well regulated and completed that by 10.15 every one of the nearly 400 machines was en route to Hastings, and there had been little friction in getting them off. One car had a puncture, another caught on fire and a third had motor trouble, and the spare cars then had a chance, but these incidents were almost unseen in the great number. Only once did a section get out of place, a part of D leaving slightly ahead of its position, but this was quickly rectified, and the trip successfully continued. All along the route the soldiers were heartily cheered by towns-

folk and countrymen, and the men in the cars seemed to thoroughly enjoy the novelty of their outing. A great many of them were having their first ride in automobiles, and little appeared to realize that there was another significance in the performance, other than that of a mighty pleasant day's ride to the coast. The drivers of many of the cars were well-known autoists, business men and sportsmen, who seemed to enjoy the run as much as the Guards. Of course there was a large delegation of professional chauffeurs. The majority of the cars were donated by the private members of the Association, as distinguished from the trade, and there was little effort made by dealers represented to advertise their cars.



Part of Artillery Section, in Commercial Cars, near Penbury.

Arriving at Hastings, the troops quickly left the machines and formed in company lines along the roads. A short drill showed that they would be immediately ready for action, if necessary. The whole body of men was entertained at dinner, not a single cent having to be expended by the War Department in the entire program. The troops reassembled on the Cricket Grounds, and the return to London started at 3 o'clock, reaching the barracks by seven.

BRITAIN'S BIG CLUB ISSUES EDICT.

LONDON, March 18.—For several years the Royal Automobile Club has barred all trials and non-stop runs, save those held under its direct supervision. There have been occasional evasions of this rule, but now the Royal Automobile Club has taken a firm stand, and any maker who arvertises the result of an unofficial trial, whether such trial was run by themselves or not, will be debarred from entering for any future competition of the club.

In addition to the annual reliability trials of the Scottish and Irish automobile clubs, a small car trial will probably be organized by the Royal Automobile Club this Summer. The trial of headlights will also be held. During the coming week an interesting trial is to be made of the new Daimler engine. Under close supervision of the club officials a 38-horsepower engine will be run on the bench at full load for seven days and seven nights without a stop. At the end of this time the engine will be erected on a chassis and run for 2,000 miles at Brooklands at top speed.

The strong outcry last year against the use of racing cars on public roads is having a marked effect on the prices of second-hand automobiles of this type. During the past season many of the famous victors of previous years' contests have changed hands at low figures, but the limit was about reached at a sale here last week. A 135-horsepower Mercedes which ran in the 1907 Grand Prix changed hands for $2,700, while a 120-horsepower Mercedes, dating from the 1906 race, brought $2,350. The price of a runabout—$1,200—made some speculative individual the proud possessor of a 90-horsepower Mercedes of no great age, and at the same figure a 100-horsepower Darracq, which won the Montague cup at Brooklands, is still awaiting a buyer. If the speed craze is still in vogue in the United States, buyers will find much to interest them on this side of the water.

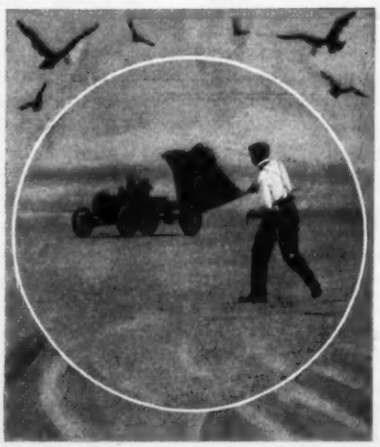
Military Rush of Men and Cars Through the Town of Penge.

Records Numerous in Floridas Meet

By R. F. Kelley

Where the Cars Lined Up for the Start of the 100-Mile Stock Car Race on the First Day of the Meet.

DAYTON, Fla., March 27.—If the breaking of records is the standard by which the seventh annual tournament of the Florida East Coast Automobile Association is to be measured, it will go down upon the pages of history as one of the best of its class. Certain is it also that the attendance of the general public was never as large. In the matter of entries of the "big fellows" the field was small but "classy," though in the stock car race and the handicaps there was plenty of competition of a highly exciting nature. The motorcyclists and bicyclists added much to the entertainment, and made some good competition, as well as accomplishing much in the matter of establishing new records.



Certainly Mother Nature was in active sympathy with the management, and did her best to place the hard-sand course in the most perfect condition. A stiff northeasterly breeze on Monday tossed the breakers high on the bench and made it as smooth as though it had been shaved with a planer. On Tuesday, the opening day of the tournament, the wind veered to the south and came straight up the course, and this condition continued Wednesday. Thursday the wind was from the west, but it was limited in quantity and of no particular aid or detriment to the contestants. The day the programme was completed, Friday, there was a breeze directly from the east, which was at times chilly, and which later veered to the southeast and helped some to bring the competitors up the stretch in very fast time.

Where and to Whom the Honors Went.

To the 120-horsepower Benz, which successfully captured three world's records, belongs the first honors of the meet. It went out of commission with a broken piston at the conclusion of the second day, but not until David Bruce Brown had set a new world's mark in the amateur class for the mile of 33 seconds flat, and had placed the professional competition record for ten miles at 5:14 2-5, an average of 31 and 44-100ths seconds to the mile, and at the rate of 114 1-2 miles per hour. George Robertson, who last fall drove the Locomobile to victory in the Vanderbilt Cup race, piloted the Benz in one race, the five-mile invitation, and set a new competitive mark of 2:45 1-5. True, the Benz did not have an opponent that was in its class, Kilpatrick's Hotchkiss having become disabled early in practice work, and the Fiat *Cyclone* was its only competitor, but this fact detracts nothing from its notable speed accomplishments.

Louis Strang's victory in Class D, in the stock-car race, was well earned, and his new mark of 1:34:00 1-5 for 100 miles justifies the judgment of the Buick people in engaging him for the coming season. Robert Burman, his teammate, had hard luck in the stock-car race, the flywheel of his engine coming off and making a bee line for the ocean. He escaped without personal injury, but the car was placed *hors de combat.*

Excellent Work of the Two-Wheelers.

The riders of the two-wheeled motor-driven machines have every reason to look with pride upon their achievements. Premier honors went to Walter Goerke, of Brooklyn, who, on Wednesday in the five-mile straightaway trials, reduced the record to 3:30 1-5 for that distance. This was followed on Thursday by another successful onslaught on the record table by Goerke, his first performance being a lowering of the kilometer mark to :27 4-5, and his second the winning of the one-hour record race for motorcycles, in which he clipped a large slice off the Brooklands track record of 68 miles, 1,380 yards, by traveling an even 69 miles in 58:25 4-5. The course was measured with a view of timing the competitors at 69 miles, and there was no means of knowing what distance Goerke had covered at the end of the hour, though there is little doubt but that it was over 70 miles. A. G. Chapple, of New York, suc-

The Crowd that Lined the Beach and the Grand Stand, as Seen from the Stairway of the Club House Landing.

ceeded in lowering the ten-mile competition mark on Friday by placing new figures at 17:25 1-5. He also won the five-mile open on Wednesday. New record for the mile straightaway was set by Robert Stubbs, an amateur from Birmingham, Ala., on Thursday, the time being :43 2-5. All of these records were made on Indian 7-horsepower machines.

Much interest was shown in the bicycle events which were sandwiched into the programme, as most of the officials and drivers have been at one time or another identified with the time-honored cycle, either in the industrial or competitive field. On the last day of the meet DePalma fitted up his Fiat *Cyclone* with an improvised windshield, and a series of trials were made at the mile straightaway, the bicyclists using the auto as a pacemaker. Elmer L. Collins, of Lynn, Mass., riding close to the pace, covered a mile in :58 3-5, just four-fifths of a second away from the record of Charley Murphy, of 0:57 4-5, made behind a railroad train on Long Island some years ago. The competition between the cyclists was good, and several records were established, the most notable of which was by Joseph A. Fogler, of Brooklyn, who won the flying start half-mile from a field of ten in :47 1-5.

The Aeroplane That Did Not Fly.

Aeroplanist Bates, who brought his flying machine all the way from Chicago to try a flight over the beach, secured but one chance to try out his "white wings" during the tournament. This was at the close of the races on Friday, when the wind had died down to practically nothing. When the aeroplane emerged from its shed a great crowd gathered to watch the trial. The machine started smoothly and ran upon its carrying wheels down the beach for some distance, but failed to rise. The motor worked intermittently, and the gathering darkness made adjustment impossible. The aeroplane was run back to its house for the night Mr. Bates expects to make further attempts at flight before he leaves Daytona. The heavy winds the first part of the week made an earlier attempt impossible.

As the Parade Started from the City Hall.

Passing Over Halifax River Bridge to Beach.

Automobile Parade Was a Wealth of Color.

The automobile parade of Wednesday morning was a decided success. There were over fifty cars in line, and the procession left the City Hall at 10 o'clock in the morning, moving through the principal streets and continuing across the bridges to Daytona Beach and Sea Breeze, came to a termination in front of the clubhouse of the Florida East Coast Automobile Association and official stand. The first prize, a handsome trophy offered by the Daytona *Daily News*, was awarded to M. B. Aultman's Buick, which was decorated with heliotrope. Second honors went to Miss Jessie Brown, whose car was trimmed in luxuriant green, and the third prize was carried off by Miss Bessie Bingham, in her Cadillac, which was decorated in red, green and white. The parade was the best thing in that line that Daytona has ever witnessed, and Chairman White, who headed the committee in charge, handled the affair admirably.

Happenings of the Two Closing Days.

Thursday's programme of automobile events promised to go by the board, after the disaster to the Benz piston. Work was continued all Wednesday night to make repairs, but there were not sufficient mechanical facilities to get the car into working order, and as Kilpatrick's Hotchkiss was still out of commission, the Fiat *Cyclone* had a walkover in the one-mile invitation. De Palma drove over the course in :37 2-5. As the Buick team left town early in the morning to attend the hill climb at Atlanta Saturday, the management became busy and organized two four-mile handicap events with impromptu entries. These races proved to be the most interesting of the meet in a competitive sense. Start was made at the tape, and the course was two miles south and return. Inglis M. Uppercu, the well-known New York Cadillac representative, won the first handicap with a 30-horsepower Cadillac, his allowance being 1 minute 5 seconds; time, 5:03 2-5; M. Hotchkiss, 30-horsepower Pope-Hartford, 50 seconds handicap, was second, and Mr. Seamans, 30-horsepower Stoddard-Dayton, 30 seconds handicap, was third. The second handicap resulted in a win for the Pope-Hartford, after its handicap had been reduced to 30 seconds, in 5:05 3-5; DePalma, driving Fiat *Cyclone*, from scratch, was second, in 3:16; and Seamans, Stoddard-Dayton, 30 seconds, was third.

The balance of the programme was made up of motorcycle and bicycle events, some of which resulted in records, and which are referred to above.

The programme for Friday consisted of the excess of numbers on the programme that had been crowded from the previous days of racing. The event of importance was the 100-mile race for the Minneapolis Trophy, which had to be won twice to insure its permanent possession. Last year the late Cedrino piloted the Fiat *Cyclone* to victory in this event, and this year Ralph DePalma was at the wheel in the same car to secure a second and final hold on the trophy. As it was, he had a walkover, as no other competitors lined up at the tape. He did not go after the 100-mile record, but drove a limited distance over the course, under the instructions of Referee Miles, who awarded him the race. DePalma also had a walkover in the one-mile invitation.

An eight-mile handicap, four miles out and return, brought out a field of eight starters, with DePalma at scratch, conceding

Referee Miles Surrounded by His Official Assistants.

starts ranging from 1 minute and 20 seconds to 4 minutes. He won handily in 8:45, and was followed over the tape by the Hotchkiss Pope-Hartford, which won considerable glory as a persistent starter and finisher. Mr. Aultman's Buick was third.

A neck-and-neck finish was furnished by A. G. Chapple and Walter Goerke in the 20-mile motorcycle race, in which the amateur competition record was broken by the former. It was either man's race up to the finishing line, but Chapple managed to get the best of the Brooklyn favorite.

Next Year Last Week in January.

Formal announcement was made on Thursday that the eighth annual tournament will be held next January, probably during the last week of the month. It is proposed to raise a large sum of money for cash prizes, so as to attract a representative number of world-famous drivers. Major A. D. Foster, president of the East Coast Automobile Association; Secretary T. E. Fitzgerald, and Treasurer Edward White are indefatigable in their efforts to perpetuate the annual contests on the beach, and will undoubtedly be substantially backed by the citizens of Daytona.

At the conclusion of the racing on Friday evening Manager W. J. Morgan entertained the officials of the meet, representatives of the press, and a number of leading citizens at a banquet at the Café Mills, on Beach street. Other guests present included the leading lights of the Brooklyn National League baseball team, which organization came down from Jacksonville that morning to give an exhibition game of ball at Harrison's Park. Referee Samuel A. Miles officiated as toastmaster, and there was speech-making galore. It was a graceful and fitting finish for the week of festivities.

Earlier in the week, on Monday evening, a dinner was tendered at the Café Mills to Robert Burman by the Buick people, at which a handsome solitaire diamond ring, given by the company, and a gold watch, subscribed for by the other members of the Buick racing team, were presented to him. A typical Southern menu was served.

The Daytona *Daily News*, which is an evening paper, showed sterling enterprise during the week of the meet by issuing a special morning edition devoted almost exclusively to the tournament and the accompanying festivities. Secretary Fitzgerald, of the East Coast Automobile Association, who is also the editor of the *News*, certainly showed an energy characteristic of metropolitan dailies in the general make-up and reliability of his journal.

WILDWOOD WILL HAVE RACES IN JULY.

WILDWOOD-BY-THE-SEA, N. J., March 29.—The Contest Committee of the Motor Club of Wildwood has selected Saturday and Monday, July 3 and 5, as the dates for its first race meet of the present season. The races will, as usual, be run off over the Central avenue boulevard, which provides one of the finest mile straightaway courses in the country, and will include, besides the usual class events, trials for record, open to all.

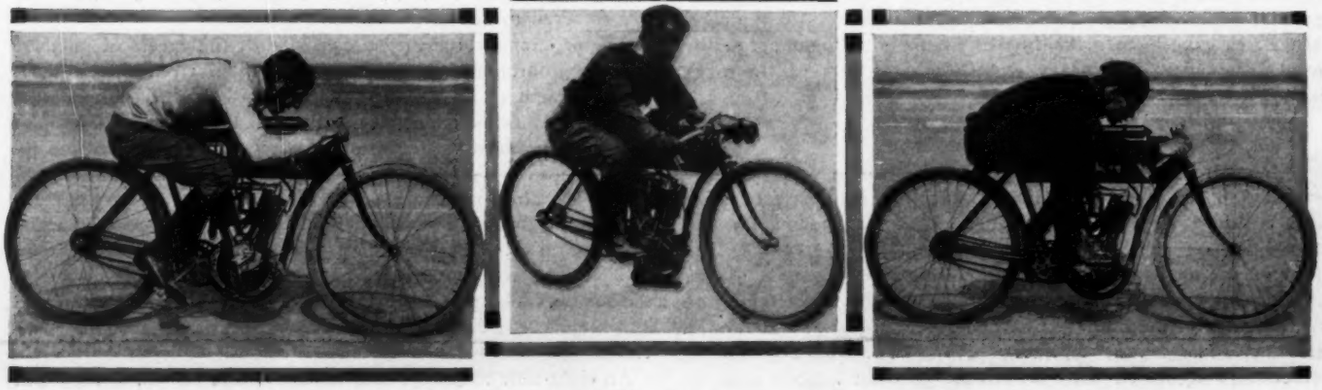
MAXWELL NOW AHEAD OF WORLD RECORD.

BOSTON, March 31.—In its endeavor to cover 10,000 miles without stopping its motor, the Maxwell touring car which started this contest on March 18, has now accomplished half of that distance without trouble, and has beaten all previous records for non-stop runs. To-day, at noon, its mileage was 5,289, and the car is continuing on its second half as easily as on its first. No stops of any kind have been made except to change crews, repair one puncture, and to replenish fuel. The first week was spent in running between this city and Worcester, making 3,000 miles over that route; then the course was changed to Providence and return, over which it is still running.

ST. LOUIS AERO CLUB MAKES ACTIVE PLANS.

ST. LOUIS, March 29.—For the promotion of aeronautics as a science and sport, the board of governors of the Aero Club of St. Louis has resolved to spend between $15,000 and $20,000 this year, instructing a committee to secure at once permanent ascension grounds, with facilities for obtaining coal and hydrogen gas inflation, and to buy a new 78,000 cubic feet capacity racing balloon. This balloon will be entered in the first championship balloon race of the Aero Club of America, from Indianapolis on June 5, with A. B. Lambert as pilot and H. E. Honeywell as aide.

To assist inventors of aeroplanes and dirigibles, the club has decided to purchase an aerial motor, which will be loaned to any inventor, whether a member of the club or not, for use in this vicinity. It will be a water-cooled engine of 30 horsepower, but has not as yet been selected. It is understood that a course in aeronautics will soon be started at the central branch of the Y. M. C. A., and the club will endeavor to aid this in all possible ways. The club plans to hold a carnival during the week of October 4.



Trio of Motorcyclists that Annihilated Records on the Daytona Beach Course—Chapple, Goerke, and Stubbs.

SAFETY AND UTILITY OF AUTOMOBILE STEERING SYSTEMS

PART IV

By Thos. J. Fay

SHOCK to the steering crank, on the knuckle of the front road wheel will be more or less, depending upon the design, an intimation of which was given in the closing paragraph of the last published part of this article, and Fig. 31 is here given to more clearly indicate the manner in which such shocks can be minimized. The section, Fig. 31, is of a design in which it is shown that the center line of the wheel, OA, and the center line of the knuckle O'A' do not bisect at the point of contact of the tire with the road, and the result is that a crank moment will generate, the magnitude of which will be proportional to the difference as shown at O and O'.

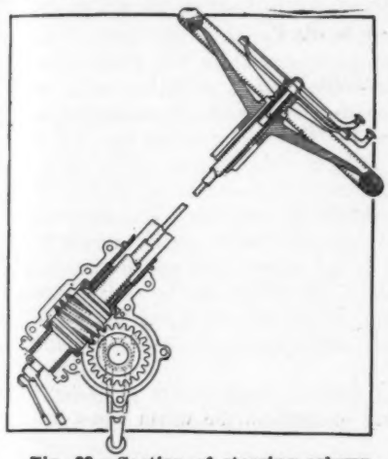


Fig. 33.—Section of steering column, showing concentric parts for advancing spark, and throttle.

The magnitude of the crank-arm moment due to the deficiency O and O', while it will be in proportion to the difference, as before stated, will also be capable of influencing the car performance in a manner depending upon the diameter of the front road wheels, as they relate to the height of road obstructions to be negotiated in the regular course of events. In the absence of road inequalities of a magnitude sufficient to influence the situation, it is a matter of no moment as to whether the conditions, as they are depicted in Fig. 31, obtain or not.

It is when the steering road wheels intercept an obstruction of a relative great height that the difference noted in Fig. 31 becomes a menace. On the other hand, it is not convenient to reduce the distance OO' to zero, and it is therefore desirable to use road wheels of a good diameter, and reduce the distance OO' to the minimum besides.

Worm and Sector Types of Steering Gear.—In this type of steering gear it is usually the practice to use multiple thread worms, a good example of which is shown in Fig. 32. The quadruple thread depicted affords good proportions of the teeth, the angle is as close to the irreversible as it is desirable to go, the surface of actual contact is quite enough for good work from the point of view of long life, and this particular gear has seen some nine years' service to its credit in cars that have made and maintained a reputation for minimum upkeep, and good road performance.

In some cases the sector is left out and instead the whole worm-wheel is used, in the manner as shown in Fig. 33, which figure also depicts the section of the steering column, and the way in which the details are worked out. This is illustrative of general practice, in which concentric tubes are used thus:

(a) The outer tube is of thin brass, does not rotate, and serves as a spacer, as well as holding the bearings in rigid relation. Brass is used, and kept polished, to enhance the general appearance of the car.

(b) The second tube is in rigid relation to the worm and the steering wheel, so that, if the wheel is rotated so will the worm rotate, which in turn causes the sector to respond, hence the steering crank, which is also in rigid relation.

(c) The third tube serves for the spark, and is rotated besides connecting with a lever on the top of the steering column, above the steering wheel, for the convenience of the driver.

(d) The inner member in the concentric nest can be a rod, although it may also be a light tube of small diameter, and if the member (c) is connected with the spark, it is then that the inner rod will be for the purpose of controlling the throttle. It is usually a matter of convenience that influences the selection, as between spark and throttle.

It will be understood that a wide variety of worm and sector details will be found in cars as they can be seen in actual practice, and it is probable that the wide selection to be noted in no way interferes with the good results to be expected. In steering equipment the results, like in ball bearings, will depend largely upon materials used and fine workmanship to a vast extent. Likewise, in the operation of a car, if the equipment is not looked after, the details of design will have small bearing on the degrees of satisfaction, since lost motion will soon render itself manifest, and the car will become a source of annoyance to the driver, if not a menace to all who have to do with it.

Some Methods Used in the Design of Worms and Sectors.—Presupposing a worm and sector for the purpose, it follows that certain of the considerations must be settled upon before it will be possible to intelligently use any formulæ in arriving at the respective dimensions of either the worm or the sector. The arc of the sector will depend upon the canting angle of the front road wheels, and this cant depends upon the afforded room, taking into account the diameter of the road wheels, and the section of the tires to be used, as well as the distance from the wheel to the side of the chassis frame.

It will also be necessary to consider the relation of the steering wheel to the canting angle, in order to determine the number of revolutions of the steering wheel for a given (combined) canting angle. If the steering wheel is to make 1 1-2 revolutions while the road wheels cant the full sweep from right to left, this information must be in hand before it will be possible to apply any formula in the process of designing the worm and sector. Even in repair work it is desirable to review this situation, as well as the other considerations essential to the process.

In some cars it is the practice to so design the system that for one turn of the steering wheel the road wheels will cant the full (combined) angle. The main trouble about this plan lies in the

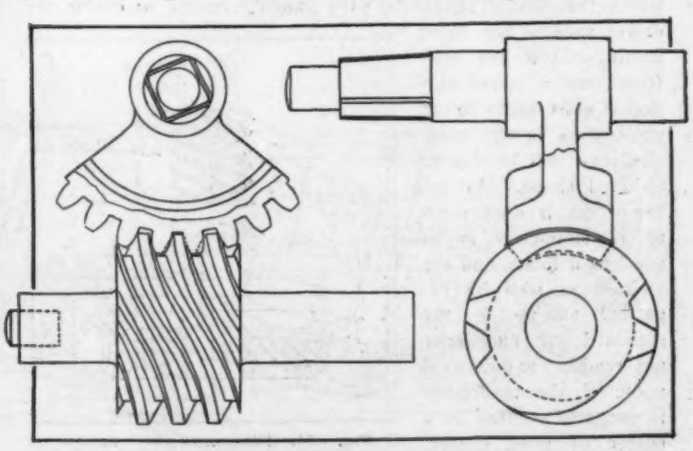


Fig. 32.—Example of worm and sector steering gearset, long used in good cars.

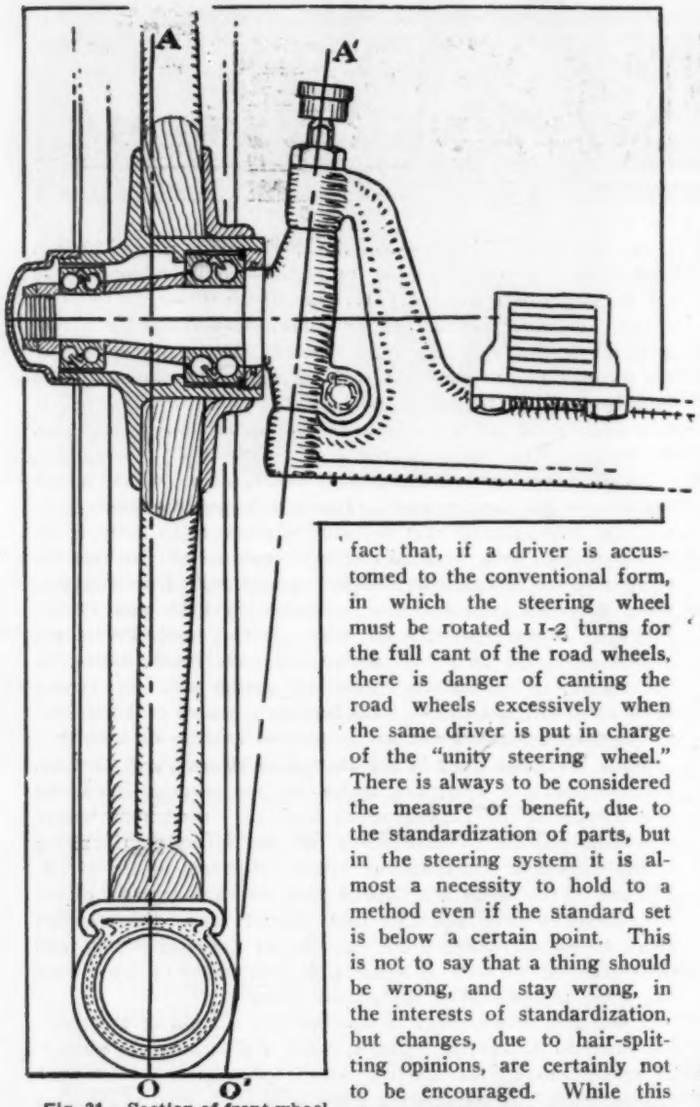


Fig. 31.—Section of front wheel, showing defect in design which affects steering.

fact that, if a driver is accustomed to the conventional form, in which the steering wheel must be rotated 1 1-2 turns for the full cant of the road wheels, there is danger of canting the road wheels excessively when the same driver is put in charge of the "unity steering wheel." There is always to be considered the measure of benefit, due to the standardization of parts, but in the steering system it is almost a necessity to hold to a method even if the standard set is below a certain point. This is not to say that a thing should be wrong, and stay wrong, in the interests of standardization, but changes, due to hair-splitting opinions, are certainly not to be encouraged. While this phase of the subject is on the tapis, it will be as well to discuss the steering wheel proper, as it relates to the wood rim used. If the rim is not securely fastened to the spider, there is a chance of it falling off at a critical moment, just when an incident, such as this, would tend to disconcert the driver, with such consequences as are prone to be the product of absent-mindedness under stress of strenuous circumstances. But if the rim is to be securely fastened, it is no less a fact that it should be of a suitable section to enable the driver to grip the same firmly, and it has been found that a round section is more likely to set up cramps in the muscles than will be due to an oval shape. As for the wood, it does seem as if mahogany is as good as it looks, and the looks may well be regarded as up to the standard of excellence not readily improved upon, if the mahogany is properly secured to a spider of good design, and suitable material.

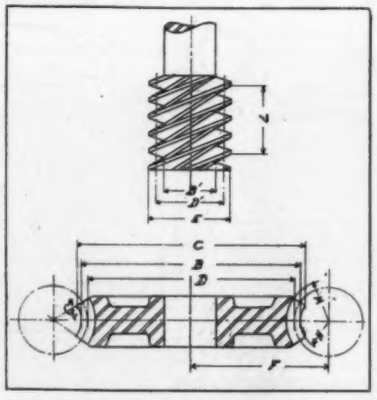


Fig. 34.—Diagrammatic figure of worm and sector used in designing formula.

After considering the details of the service, and having decided on the relation of the steering wheel to the road wheels, it is possible to use the formulæ of the worm and worm gear, one version of which is as follows:

$$8.\quad D = \frac{y\,P}{\pi} = 0.3183\,y\,P;$$

$$9.\quad B = D + 0.6366\,P;$$

$$10.\quad C = B + 2\,(N - N\cos A);$$

$$11.\quad F = \frac{D + D'}{2};$$

$$12.\quad D' = 2\,F - D;$$

$$13.\quad M = \frac{D'}{2} + 0.368\,P;$$

$$14.\quad N = \frac{D'}{2} + 0.3183\,P;$$

$$15.\quad E = D' + 0.6366\,P;$$

$$16.\quad B' = D' - 0.736\,P;$$

$$17.\quad \text{Tang. } S = \frac{L}{\pi D};$$

$$18.\quad L = P\,Z;$$

$$19.\quad P = \frac{L}{Z};$$

$$20.\quad Z = \frac{L}{P};$$

21. y = number of teeth in the worm wheel;

22. P = circular pitch;

23. S = lead angle in degrees;

24. tooth angle = 29 degrees.

The formula of the worm and sector will best be understood if reference is had to the diagrammatic illustration, Fig. 34, in which will be found the reference letters corresponding to the letters used in the formula. In relation to the material to use, it will be understood that there are several choices, as for illustration, the worm can be of cementing steel and case-hardened. The sector can be of phosphor-bronze. Alloy steel may be used for the worm, and the choice of cementing or quenching from some high temperature will fall to the lot of the chooser.

The cementing process has its advantages, and assures a hard surface, which is well worth taking into account. If alloy steel is used and the same is to be cemented, it is then that the carbon content should be low—very low indeed—and this is the kind of steel that is hard to get. Whether or not the material of the worm is to be of alloy or carbon steel, if it is to be subjected to the cementing process, the carbon should not be higher than 20 point, as an outside figure. For the rest it is largely a matter of personal choice, among the respective generic types of steel.

Some Products that Can Be Used.—Considering the cementing process, and allowing that the core of the cemented section should be tough and soft, the steels as follows might be selected:

Carbon Steel for Worms.—The chemical composition should be within the following and the steel should be of the acid process:

Carbon.	Silicon.	Sulphur.	Phosphorus.	Manganese.
.15-.20	.10-.20	.03-.04	.03-.04	.30-.40

The physical properties should be those due to proper fabrication of the steel, but it is hardly worth while to go over this phase of the question for the reason that the steel will be so altered in the cementing process that it is a well-fabricated

product, the end will be that due to cementing, which is bound to represent a decided improvement.

Cementing Nickel Steel.—In this grade of steel there is so much chance of going wrong that it is a question if it is worth while taking the chances, unless access can be had to some well-known grade of steel in which the imperfections that do abound in nickel steel will be more nearly absent.

At all events the steel should be an acid product with the carbon positively within the limits here given:

Nickel.	Carbon.	Silicon.	Sulphur.	Phosphorus.	Manganese.
4.5	.10-.15	.15-.20	.03-.04	.03-.04	.30-.40

Physical Properties.—The elongation should not be less than that as here given, with the steel in the normal state:

Elastic limit in pounds per square inch (minimum).....60,000
Tensile strength in pounds per square inch (maximum)....90,000
Elongation, per cent. in 2 inches (minimum)..... 30
Reduction of area in per cent (minimum)..... 69

In this work the test proof should be 0.5 inches in diameter, and it would be of advantage to experiment with some of the steel, before and after cementing, with a view to ascertaining the extent to which it will become brittle in the heat-treatment. Some grades of nickel steel behave better than others in this service, and in not a few cases it was found that the steel could not be safely used at all. It is in repair work especially that care should be exercised, since in the maker's plant much experence generally eliminates the troubles likely to arise.

Chrome Nickel Steel.—In this product there is ample opportunity to get into trouble due to high carbon, and such other irregularities as can readily fall to dual alloy steel. The remedy lies in not using the steel at all, unless the carbon is low, and provided the physical properties are quite up to the standard here set.

Chemical Composition.—With the understanding that the carbon will be lower, if anything:

Chromium.	Nickel.	Carbon.	Silicon.	Sulphur.	Phos. phorus.	Manganese.
1.4-1.6	4.40-4.60	.10-.15	.15-.20	.013-.015	.01-.013	.30-.40

Physical Properties.—Under no circumstances should the elonation be other than the value as here given, for the steel in the normal state:

Elastic limit in pounds per square inch (minimum)..... 90,000
Tensile strength in pounds per square inch (maximum)..110,000
Elongation, per cent in 2 inches (minimum)..... 22
Reduction of area, per cent. (minimum)..... 65

In the cementing process the penetration will not be exactly the same for the several grades of steel, but the chart (Fig. 26, Part II), will afford such information, in relation to the time, that nothing more will need be put down here, especially as this phase of the subject can be taken up by the interested reader, as a separate matter to be investigated.

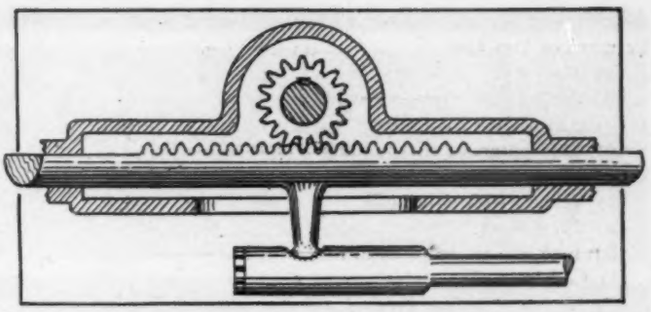


Fig. 35.—Characteristic sketch of rack and pinion.

After cementation it is necessary to quench, and in the process there is every chance to go wrong. With some grades of steel the "single quench" will do, and the case will be hard, while the core will be soft and tough. In some examples the core will be rendered crystalline in the process that makes the shell hard, and the result will not be good. To eliminate this trouble it is necessary to put the parts through a double quenching process in the manner as follows:

(a) Quench at 900 degrees centigrate, in oil at the temperature of the surrounding.

(b) Reheat to 750 degrees centigrade, and then quench in salt water at the temperature of the surrounding.

In this way the core will be rendered tough and soft, while the shell will be quite up to the hardness likely to result from the use of the given grade of steel. As regards the efficiency of quenching baths, the media are given below in the order of merit:

In the cementing process it is not only a question of time that fixes the penetration, but the cementing material as well. It is not desirable to have the cementing material too intense in its action, and if the ground bone, or whatever may be the form of the carbon, is in 60 per cent. presence, the time will be fixed accordingly. At all events, it is the height of good practice to use some one grade of cementing material, and when a product is found for the purpose to get used to it, and stick to its use is in the path of wisdom. It is in making changes that mistakes are frequently made also.

Merit of the Respective Quenching Liquids Used.—The first-named medium (mercury), cannot be used with safety, excepting for very small parts, on account of the poisonous vapors

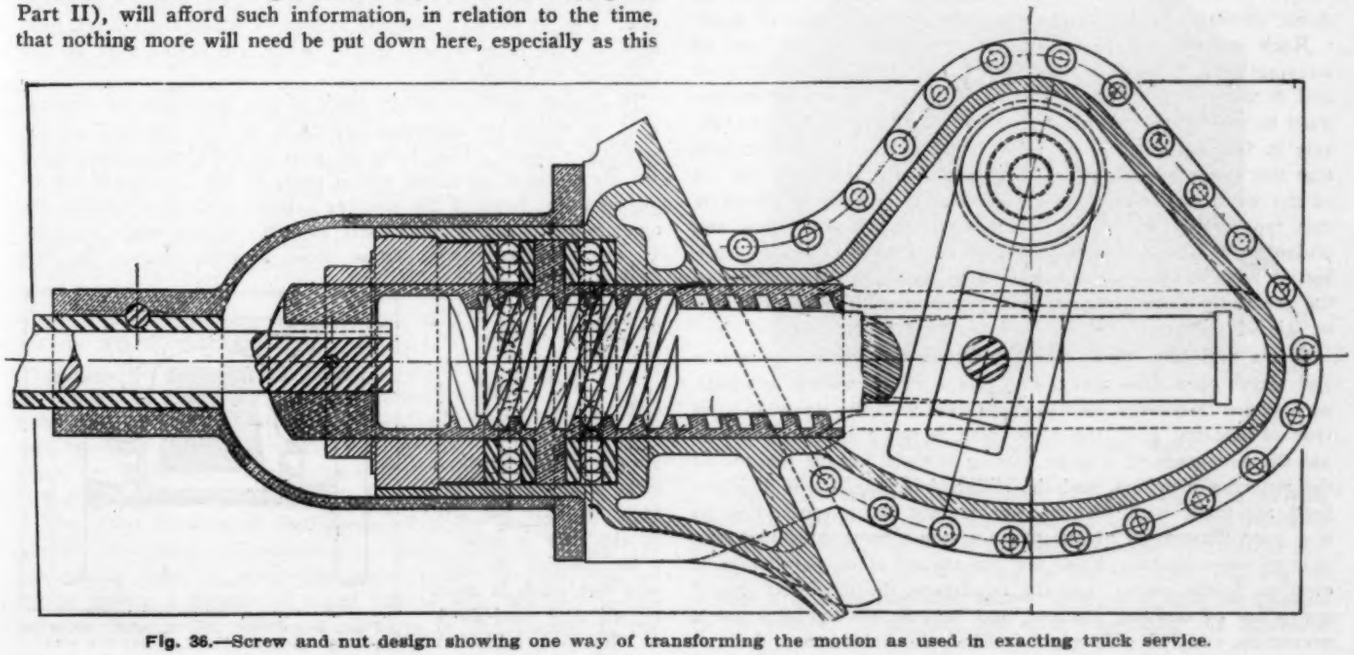


Fig. 36.—Screw and nut design showing one way of transforming the motion as used in exacting truck service.

emitted, and for that matter all heat-treatment work is attended by more or less risk.

(a) Mercury.
(b) Acidulated water, ice cold.
(c) Salt water, ice cold.
(d) Salt water, at surrounding temperature.
(e) Water, at surrounding temperature.
(f) Water, with skim-milk.
(g) Limewater.
(h) Fish-oil, or cotton-seed oil.
(i) Cod-liver oil.

(j) If some means is at hand for maintaining a constant temperature of the quenching bath, and if the parts are placed in a "jet" of the liquid, to wipe off the globules of steam, the efficiency will be much enhanced.

Since lost motion is the bane of the steering gear situation it is not believed that too much time has been taken in the act of indicating the manner in which the worm can be rendered as serviceable as possible, and the process of repair is certainly one that is well worth more than a little of the most careful attention. When the worm is so worn that flat spots are noticeable on the faces of the threads, it is generally better to cast the worm out and make a new one for the purpose

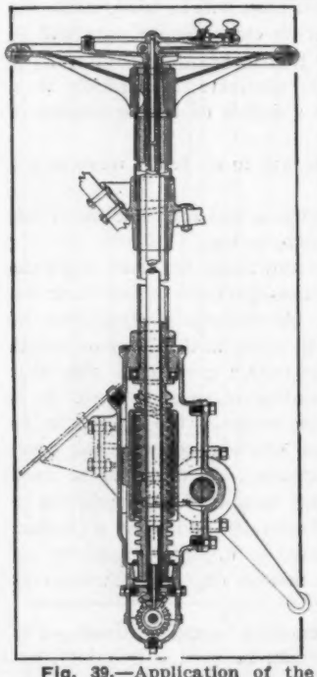


Fig. 39.—Application of the Acme principle to a steering gear set.

In worm and nut work there is a wide choice of threads, and means by which the motion can be adjusted to suit the requirements. In the mean time, it is something of a misfortune that the motion has to be transformed, since it leads to extra bearings and the possible lost motion so much to be dreaded. Square threads are used to some extent, but it is not desirable to resort to the use of the U. S. standard or any of the V shapes, since they do not assure easy action, and the surface is less than that which can readily be realized through the use of the Acme standard thread, which is much used in this class of work.

Rack and Pinion Form of Steering Gear.—This form of steering gear is used to some extent in commercial car work and in many respects it is to be commended. True, lost motion must be present to the extent that back-lash is a necessary property in the relations of the rack to the pinion. It is also true that the "lever advantage" will be less than that due to the use of the worm and sector, and irreversibility is entirely absent in this type. Fig. 35 depicts a conventional form of rack and pinion gear, which, with a pinion of the smallest possible number of teeth considering good practice, and a steering wheel of the greatest possible diameter, it becomes feasible to use the idea to fair advantage.

Screw and Nut Much Used in Practice.—While the worm and sector plan does away with any need of sliding bearings, such as are frequently used in connection with the screw and nut type of steering gear, the latter plan is much in vogue, and it has the advantage of a large bearing surface for the threads of the reducing members, and the sliding bearings, when they are used, are made with adequate surface for the purpose, Fig. 39 is a good illustration of one phase of the scheme, and while details of the respective plans are not always along parallel lines, even so, to the owner, and the repairmen, the deviation should not prove of undoing purport, and because the surfaces are a maximum, coupled with good facilities for lubricating, the evil

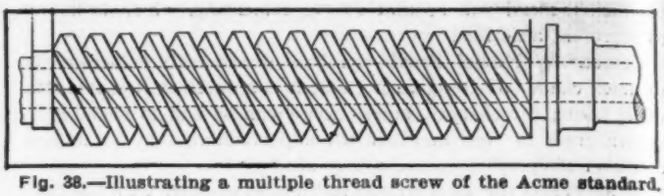


Fig. 38.—Illustrating a multiple thread screw of the Acme standard.

day should be much deferred and repairs should not be past the ingenuity of a man of fair skill, while the tools in the average shop should be adequate for the purpose.

Acme Standard Screw Thread.—In the class of work of the subject it is quite generally the practice to use the Acme 29 degree (included angle) thread, the data of which is as follows:

Width of point of tool for screw or tap thread,

$$25.\quad W = \frac{0.3707}{\text{number of threads per inch}} - \frac{6}{} - 0.0052.$$

Width of screw or nut thread,

$$26.\quad W = \frac{0.3707}{\text{number of threads per inch}}$$

Diameter of tap,

$$27.\quad d = \text{diameter of screw} + 0.020$$

Diameter of tap or screw at root,

$$28.\quad D = \text{diameter of screw} - \frac{1}{\text{number of linear threads per inch}} + 0.020$$

Depth of thread,

$$29.\quad B = \frac{1}{2 \times \text{number of threads per inch}} + 0.010$$

In this class of work, in the shop, it is of especial advantage to have at hand a "worm-thread tool gauge" conforming to the Acme standard, which gauge will serve to furnish the correct form in turning the thread or the worm. That this form of thread is quite up to a fitting standard is assured by the large number of steering gears in which it has found a resting place.

Fig. 38 shows a worm cut in accordance with the Acme idea, and Fig. 39 is a good example of the use of a screw and nut steering gear.

Before concluding, it will be the aim to advocate the presence of good materials in the component parts of steering gear, and such fine workmanship that the chances of trouble will be as a remote contingency, and even then under stress of the greatest provocation. Fig. 37 shows a steering system in which the cranks, linkages and the drag, as well as the tierod, are nested high up and back, out of harm's way.

In closing, mention will be made of one more type of steering gear, in which the planetary system is used in the head of the steering column. This form of gear is sufficiently irreversible for all practical purposes, and it nests so closely that it can be placed in the head of the steering column without rendering the appearance of the system nearly as bulky as one might suppose. In the planetary gear system there is little chance for lost motion if the work is fairly well done, and it is an advantage, the fact that the work has to be well done, in order to be able to assemble the gears. This system also affords a large amount of surface, so that the life of the gear is long.

In practice the system has made a good record and road-shock is effectively shielded.

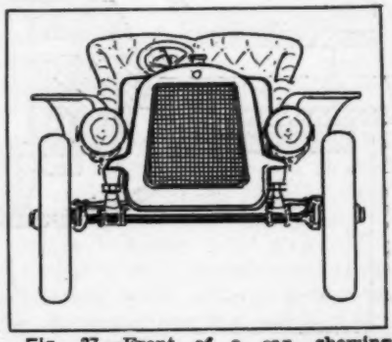


Fig. 37.—Front of a car, showing steering equipment out of harm's way.

Automobile Cooling Systems Analyzed

By Morris A. Hall Part III

THE matter of the relative volume of air and water for equal cooling ability may be expressed in another way: that is, the ratio of the specific heats of the two being .2375, the ratio of the volumes is the reciprocal of this, or 4.2. The meaning is that to remove the heat from the water in the radiator by means of air it will be necessary to use 4.2 times as much, or if the efficiency of the radiator is taken into account, five times as much.

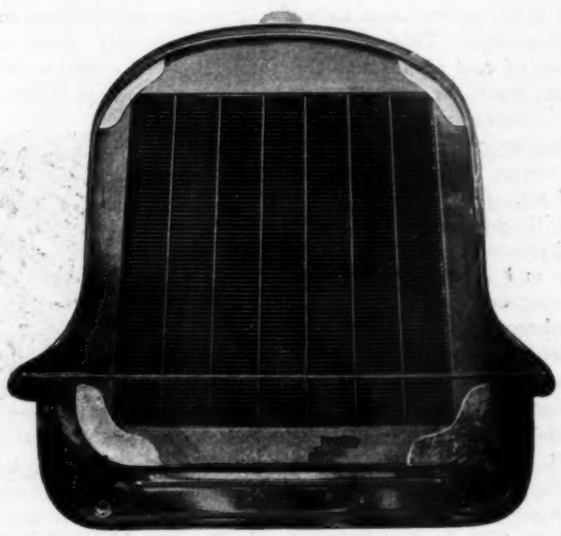


Fig. 8.—Appears like a square tube honeycomb.

Ratio of Air to Water a Big One.—This really is a very large ratio and one that would be difficult to obtain if the air and water passed through the cooler at the same rate of speed. However, that is not a condition that obtains in practice; in fact, the air is passed through at such a high rate of speed compared to the speed of the water that the volumes are very nearly equal. Thus the inherent inability of the air to remove heat quickly and efficiently is more than overcome by using an enormous amount of it passed through at a very high linear speed.

This brings up the question of efficiency per unit of frontal area. The space which can be given up to the radiator is always limited as will be explained later. This, in turn, limits the frontal area. Now, if the area is limited, the efficiency of this area must be increased to compensate for the lack. The latter, is effected in several ways, thus the depth may be increased, within certain well-defined limits. Or, the surface may be lengthened by corrugations, that is the internal surface, so that the water in passing through, must travel a longer passage. If an equal amount of air is presented all along the tortuous passage, the cooling effect must of a necessity, be greater. This works both ways, for if the other side of the tubes are also corrugated there is a greater surface exposed and the whole is more efficient.

The Two Classes of Radiators.—Broadly speaking, there are but two classes of radiators, also called coolers. These are the tubular type, in which the water passes through coils of tubing having a number of metal fins or gills fastened on the outer circumference. The second form is that known as the cellular honeycomb type. This consists of a flat tank pierced by a multitude of small tubes. In practice, these vary greatly not only among the different makers, but also between the different sizes and for dissimilar uses. The difference between the two types is but a difference in form, the one hot substance passing through the tube and the other, or cooling medium, circulating around the outside. There is, however, this minor difference, that in the two classes of radiators the heated fluid occupies, in one, the inside of the tube, while the cooling substance is outside, and in the other the one to be cooled is outside and the one used to cool passes through the tube.

These two general types have many and varied forms in practice; in fact, until the last year, the leaning was away from anything that savored of the commonplace or ordinary. This tendency resulted in a crop of different coolers, every maker had his own shape, and each one was made primarily distinctive, and secondarily for cooling purposes. Now, however, all that is changed, and with very few exceptions the front view of one car is not unlike that of many others. This has made recognizing a car impossible from a front view.

In Fig. 8 is shown a sample that many will recognize at once. This is of a popular medium-priced car, and the radiator is a clever attempt to produce the looks of the square tube cellular type at tubular price. As the comparative efficiency of the two has never been satisfactorily and definitely proven, this is no crime, but rather a good example of good looks and equal ability for little money.

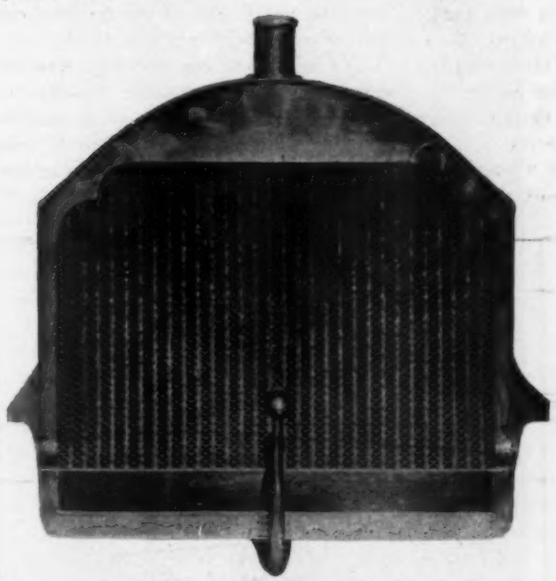


Fig. 9.—Typical modern tubular cooler.

Figure 9 is another of the same kind, although the striving after the square tube is not so marked as before. The incurving corner ornament is more on the modern order of radiator distinction, and is typical of several of the best cars. In Fig. 10 is seen a real cellular with square tubes, and these set parallel to the ground. This, too, has what was called the Mercedes

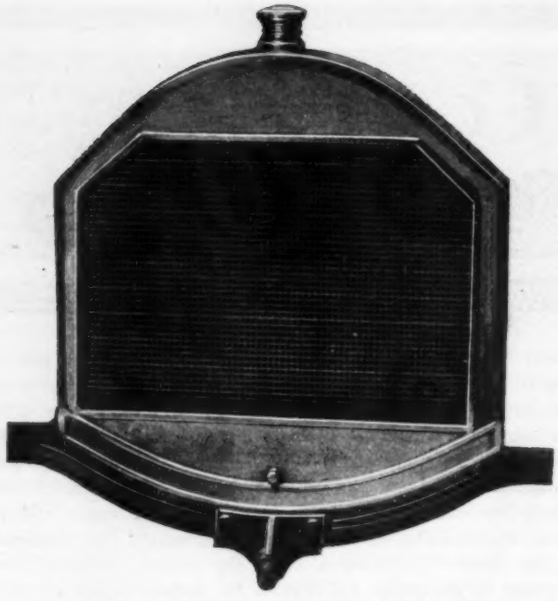


Fig. 10.—Square tube cellular of pleasing lines.

shape, from the firm which brought it out. This shape has now become general, and is no longer called by that name. The conditions which brought about the development of the shape are simple and easily understood.

How the Mercedes Type of Radiator Was Evolved.—When the tee head motor was developed, the ignition wires and water pipes over the top of the engine marked the high point of the outfit. The frame had a definite fixed width, the top of the symmetrical parts of the cylinders came at a certain distance above the frame, which parts had to be cleared by the hood. The high point being fixed, anything that went higher by more than reasonable clearance added unnecessary and useless weight. What was more natural than two straight lines sloping down to clear the cylinders and meet the vertical side lines? Upon close investigation, this is seen to describe the so-called Mercedes type exactly, with the addition of a long radius curve at the top to take off the curse of the straight lines.

This kind of a radiator has long been called honeycomb, and many people have wondered why. In Fig. 11 is shown one of the earlier radiator sections. This, it will be seen, is formed of a series of six-sided or hex tubes, fastened into a header in such a way as to allow of space between the tubes for the passage of water. It is a true honeycomb, and, although the hex tubes proved expensive and did not last, the name stuck and is used to-day to indicate all radiators in which a series of tubes are fixed into a header with water spaces between them.

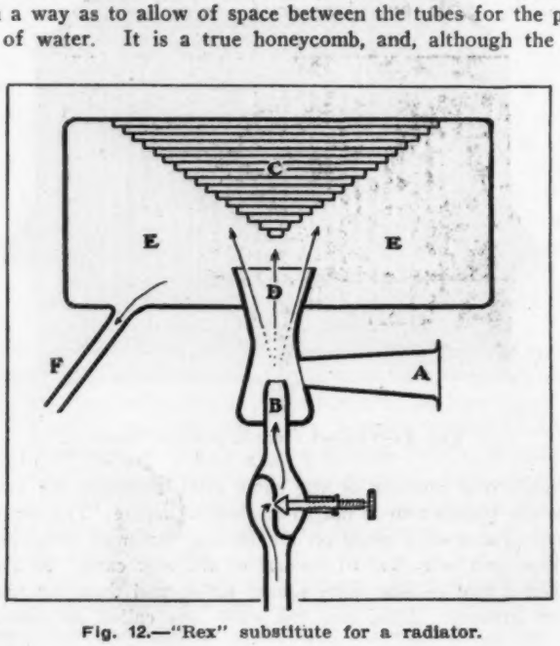


Fig. 12.—"Rex" substitute for a radiator.

Innovations Differ from the Standard Shape.—In stating that radiators are fast approaching a standard shape, the exception must, of course, be made that coolers intended to work along new lines or on a new principle usually take on a new and different shape. Thus, in Fig. 12, is seen a device brought out in France less than a year ago which would hardly be recognized as a radiator. That is what it was intended for, however, and a brief explanation of the principle upon which it works will be of interest.

The device consists of an entering tube of the shape of the Venturi meter, whose action is well known. Into this tube, at the proper point, the hot water is forced at a very high pressure, much higher than is ordinarily used, and amounting to perhaps 50 pounds per square inch. This powerful jet of water issuing into the venturi tube *D*, expands suddenly from its high pressure down to atmospheric, while at the same time the rush of water draws in a large volume of cold air at the opening *A*. The sudden expansion of the water, according to a law of physics, gives up the most of its heat to the surroundings and is itself cooled. This cooling action is materially aided by the inrush of cool air through the nozzle *A*. The cooled water impinges upon the step cone and drops to the tank below. In this dropping process, it is further cooled by the ascending currents of cold air. *F* is the drain pipe through which the fluid returns to the cylinders and goes to work once again.

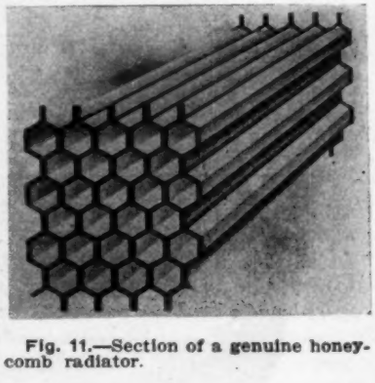


Fig. 11.—Section of a genuine honeycomb radiator.

Radiator Small Enough to Go on Dashboard.—The makers of this contrivance placed it on the dashboard rather than in front and made it very small. In size, three of these—the number necessary to cool a 30-horsepower engine—take up approximately the same space as a three-feed lubricator, viz., 6 inches long, 5 inches high, and 2 inches deep. A single addition to the usual outfit is necessary in the shape of a small tank holding a gallon, to care for the losses by evaporation at the nozzle.

Another novelty, apparently of equal merit, was brought out at the same time. It is shown in place on the dashboard of a large truck in Fig. 13. The line of reasoning which would apply here is that if the device was proven successful on a motor truck, where the radiator requirements are very severe, it could not help but be eminently satisfactory on a touring car. On a truck, the engine must run fast while the vehicle runs slow. The former means a great deal of heat to be dissipated. The latter, on the other hand, means very little air for cooling purposes. The combination expresses the necessity for excessive size, unusual efficiency or a combination of the two. In the two last cases, the device would be applicable for pleasure car use, but never with the former.

The principle and construction are both very simple. As Fig. 14 shows, there are two headers, one at the top where the water enters, and one at the bottom for the outflow. Connecting the two are a series of small diameter copper tubes arranged in semicircular form. This gives the outfit its cylindrical shape, and leaves the central portion for the fan. By making the external diameter large and restricting the number of tubes, the interior space is left large. This allows of the use of a very big diameter fan, which is not the case with the ordinary arrangement. By having such a large fan, and by rotating it at a high speed in the heart of the radiator, so to speak, a high efficiency is obtained. For touring practice, the diam-

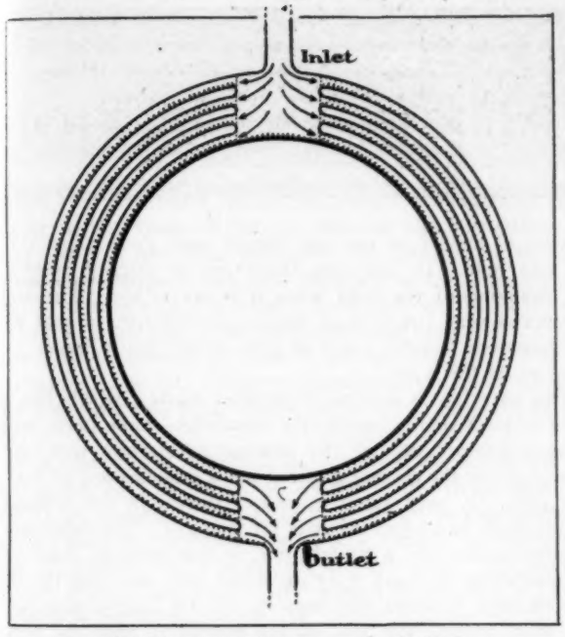


Fig. 14.—Illustrating a new principle.

eter would be smaller than the one shown, but the depth could be greater because of saving the space taken up by the fan.

Convection or Radiation, Which Is Most Important?—In discussing the efficiency of radiators or any other cooling medium, the qualities of radiation and conduction enter. To define these, radiation of heat is that action which takes place between bodies at measurable distances apart and follows the laws for the radiation of light. Conduction is the transfer of heat between bodies or parts of bodies which touch each other. Internal conduction takes place between the parts of one continuous body and external conduction through the surface of contact of a pair of bodies. Convection means the transfer and diffusion of the heat in a fluid mass by means of the motion of the particles. The latter is properly called internal conduction.

Relative ability of any body or substance to radiate and to conduct heat varies. Heat rays proceed in straight lines, and the intensity of those radiated from any one source varies inversely as the square of their distance from the source. The rate at which a hotter body radiates heat depends upon the state of the surfaces of the bodies as well as on their temperatures. The rate of radiation and of absorption are increased by darkness and roughness of the surfaces and the contrary also holds true, diminished by smoothness and polish. The quantity of heat radiated is also a measure of its heat-absorbing power.

The rate of heat radiation of various substances has been measured, and according to one well-known authority is:

Lampblack and water	1,000
Ordinary glass	900
Silver leaf and glass	270
Cast iron, brightly polished	260
Wrought iron, brightly polished	230
Steel, polished	170
Tin	150
Varnished copper	140
Cast brass, polished	110
Brass, brightly polished	70
Hammered copper	70
Plated gold	50
Gold on polished steel	30
Silver polished bright	30

Tests Show Increased Efficiency for Dry Surfaces.—On the subject of the conditions of the surfaces, a series of tests to show the effect of differences were made, using cast-iron in the form of a cube. These are of interest, and are given below:

Surface.	Oiled.	Dry.
Rough	100	100
Planed	60	32
Drawfiled	49	20
Polished	45	18

From which it appears that the oiling of smoothly polished castings more than doubles the loss of heat by radiation, while it does not affect rough castings, and finished ones only moderately.

The table of relative heat-conducting power of the metals tells a far different story, for here the metal which was low before is high. For the lesson it teaches, these values are given below:

Silver	1,000
Gold	981
Cast copper	811
Cast copper with .25% arsenic	771
Same with .5% arsenic	669
Same with 1% arsenic	570
Wrought iron	436
Tin	422
Steel	397
Cast iron	359

Now while these are pertinent to the subject and very interesting, they do not apply directly, for the desired quantity in any comparison of cooling is not an abstract one, but an absolute, definite entity. So one more table is given of the amounts of heat radiated by different substances.

Heat Units Radiated per Hour per Square Foot of Surface for 1 Deg. Fahr. Excess in Temperature:

Polished copper	.0327
Polished tin	.0440
Polished brass	.0491
Polished sheet iron	.0920
Sheet iron	.5662
Glass	.5948
Cast iron, new	.6480
Cast and sheet iron, rusted	.6868

Relative Value of Detached and Integral Fins.—While on the question of efficiency it will be well to call attention to one very practical deduction which may be made from the above tables, viz.: that a detached fin on a tubular cooler is not the equal of an integral fin. This is seen in the first and third tables. A detached fin would transfer heat by radiation, while an integral one would dispose of it by conduction. Taking any material at random thus, for tin, the radiating power is only 150-1000 of the best medium, while the conducting ability which would be characteristic of the integral tin fin is 422-1000 of the best. A tin fin on a copper tube is not the equal of a copper fin on a copper tube, even if both be soldered.

(To be continued.)

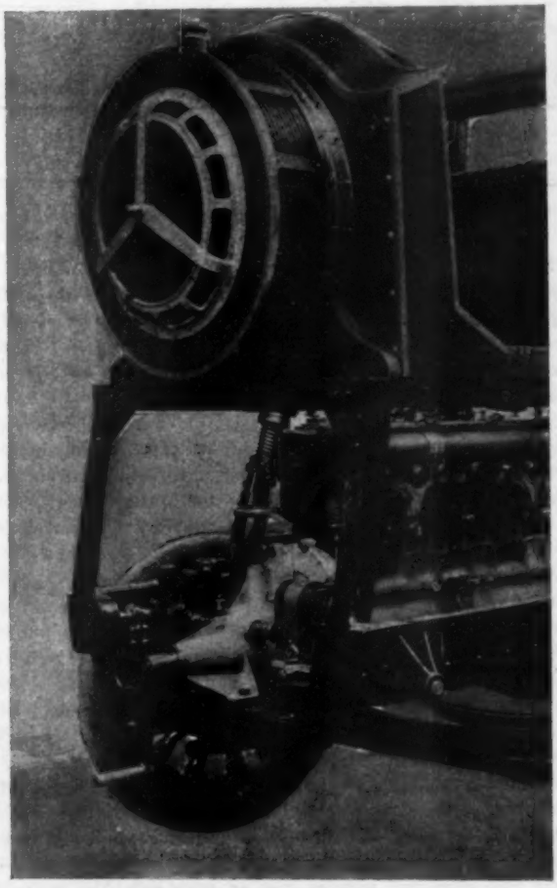


Fig. 13.—Novel radiator in place on a truck.

Self Starting Devices Attract Much Attention

TIME was when a motor that would start in a majority of crankings was something of a wonder. So far has the industry progressed, however, that to-day no one thinks a motor really good unless it will start on the first turn of the crank nearly always, and on the spark about half of the time. From a necessity, cranking is now considered by many as drudgery, so that efficient and reliable self-starting devices are in big demand.

There are not many of these on the market at present, but from all indications the coming and future years will see a gradually increasing number. Manufacturers who have fitted them in the past, even if they desired to discontinue, could not do so now on account of outside pressure. Similarly many makers who have not fitted them in the past are now working on various devices of this nature, in the desire to secure the necessary reliability before giving their stamp of approval.

Speaking broadly, there are two classes of starting devices, under one of which heads all starters come, as a matter of the basic principle and regardless of the details or the manner of working them out in practice.

Fig. 1.—Strap used for starting purposes.

These are the mechanical or spring actuated and the compressed fluid actuated devices. In the first class properly belongs any mechanical contrivance by the use of which the driver of the car does not have to "wind up" the motor by means of a rotating lever directly attached to the engine, and, therefore, liable to a "back kick," which is the real objection to the cranking of the engine. This class includes such devices as the coil spring, wound up by the running of the engine after having been once started by hand. This is wound up tight and then the engine automatically cuts itself out, leaving the spring tense. To use, the spring tension is suddenly relieved by a suitable device and then it tends to unwind. This process results in a rotary motion which is utilized to turn the engine over.

Strap Starting Devices Look Very Simple.—In this class also belong that type of starters in which a strap is pulled upwards or sideways, this motion rotating the flywheel or other suitable drum. A spring returns the strap to place, so that it may be used over and over with no appreciable interval. In case the engine backfires or tries to rotate backwards, the strap simply slips on the drum or is pulled out of the operator's hand, with no attendant danger. Fig. 1 shows a commercial form of this type in which the strap is plainly seen. On the right is the drum upon which the strap is normally wound and held by means of a spring. The band or strap is normally held away from the drum by the two clips and springs, one on each side, but, when force is exerted upon it to turn the engine over, these allow the band to take hold. In this way there are no friction losses from the dragging of the band when it is not in use. The angle of contact is very large, being nearly 450 degrees, so that a small coefficient of friction (such as this device would have) is sufficient to do the work.

This principle is utilized in another starter, which has a side lever in place of the handle, the remainder of the parts being the same. Another one of the mechanical starters uses the side lever, but for the actuating means has a modification of the worm and gear. A deep spiral groove is turned in the prolongation of the shaft and a pair of dogs set into this. The latter are constrained to move in a straight line, so that only the shaft rotates. By operating the hand lever the other lever carrying the dogs is moved, and through the medium of the spiral groove turns the shaft around, the total motion depending upon the length of the spiral and the amount of the lever motion. It may, however, be such as to afford three turns of the shaft, which usually are sufficient for starting purposes. A jaw clutch prevents the rotating of the engine from being retroactive, that is, from working the starting device in the opposite direction.

Very similar to this is the form in which a rack and gear are employed, the latter arranged on the crankshaft with a clutch and the former contacting with it. Motion of the hand lever draws the rack across the car, thus rotating the shaft, and with it the engine. Still other mechanical starters have been brought out and, in some cases, successfully used, but in the main these follow along the lines of some of the above-described contrivances.

Fluid Pressure Systems Are More Popular.—Owing to the fact that all of these require more or less physical exertion, the difference between them and the ordinary cranking being the linear motion instead of circular, and the elimination of all danger, the use of a fluid pressure system in which there is neither work nor danger is more desirable and would be more popular. After cranking over a big motor the notion of pressing a button to start is particularly attractive.

Nearly all of these use the air, but some employ the exhaust gases. The advantage in so doing lies in the elimination of the compressor and the attendant mechanism to drive, connect and disconnect it. As well as making for simplicity, this saves weight, and the elimination of extra parts allows the driver more peace of mind. All this is said with the proviso that the arrangement works and works at the desired time, without which it is useless. The doubt here expressed is a large item, and has proved the downfall of many an apparently good mechanism.

The system just spoken of may take either one of two forms, viz.: the actual exhaust waste gases may be drawn off from the motor, stored in a tank, and used as a source of energy; or the mixture may be taken during the compression stroke, just before ignition, so that the starting fluid is a combustible mixture and differs in the strict definition from carbureted gas only in being under great pressure.

The complaint made against using the exhaust is that the starting gases so weaken and impair the mixture from the carbureter that a considerable number of turns are necessary to start the machine. This in turn means a very large gas storage tank, which adds materially to the weight of the car. The exhaust pressure, in a well designed engine running under normal conditions, seldom exceeds 35 pounds, so that a high pressure may not be obtained from this source.

Any Pressure Possible with Outside Compression.—The method of utilizing the compressed gases has the same detri-

mental feature, but not in so marked a degree, in that *any* pressure is impossible. However, a very high pressure in comparison with the other method is obtainable. The compression usually runs from 70 pounds upward, and it has been known to be as high as 110 pounds, so this would give good, if not maximum results.

With an outside and independent compressor any desired tank pressure can be obtained, and, as a matter of fact, the majority of these systems do use it higher than any of the figures thus far given. In the Saurer system 225 pounds is maintained in the reservoir at all times, while the Renault method utilizes 250 pounds. Others use other pressures, but they are above 200.

As usually constituted, a fluid pressure system consists of a source of pressure or compressor, a storage tank, a distributing valve and a lever, button or other operating means. In use, the engine must be started by hand in the first instance. This creates a source of power, whether it be exhaust gas, compressed gas or air from a compressor driven from the crankshaft or camshaft.

Fig. 2 shows the essentials of a system in which the air-cooled compressor is driven off of the main driving shaft just ahead of the gearcase. The hand lever shown on the dashboard, when forward in the position marked I, throws the compressor clutch in, and it then charges the storage tank. The valve to the latter is set at 225 pounds, and when that pressure is reached the clutch is automatically cut out.

A Simple Touch on a Lever Starts the Engine.—When it is desired to start the car the lever, shown in larger size and more detail in Fig. 3, is pulled backwards as to position III, the compressed air from the tank flows up through the governing valve and thence to the distributor. The latter is situated high up between cylinders 2 and 3, and is driven by miter bevel gears from the crankshaft, so as to have the same speed of rotation as the latter. This consists of a revolving sleeve in which are cut ports, one for each cylinder. As the sleeve turns (with the crankshaft) these ports register in turn and in the proper firing order, with passages which connect to the individual cylinders. The air under pressure is admitted by the governing valve, on the dash previously spoken of, to the interior of this sleeve, and thence to the proper cylinder.

As shown in Fig. 4, this is open to cylinder number 2, and in this situation the air will pass into that one and drive the piston down. This must necessarily turn the crankshaft around, and with it the distributing valve, which thus registers with the cylinder next in the firing order, number 4, or whatever it may be. From this it is plain that the tank will continue to feed air to the cylinders until all of the supply has been exhausted or the engine has been started.

A feature prominent in another system may be mentioned briefly. This is essentially the same as the one just described, but the control of the compressor differs in that the air-suction valve has a flexible diaphragm which is in contact with the tank, or rather to which the compressed air has access. As the pressure rises this distends until, at the predetermined maximum, it holds the air inlet open, thus preventing compression and consuming no power. Of course, as the pressure falls off from leakage or the use of air the diaphragm changes its position to correspond, until at a certain fixed minimum pressure the suction valve will be allowed to close on the compression stroke, and thus the tank will be automatically replenished.

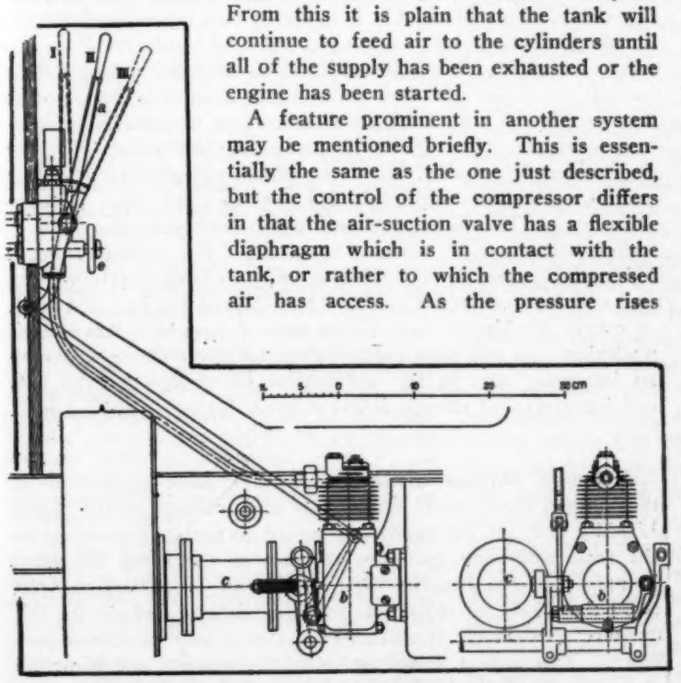


Fig. 2.—Essentials of a successful air starter.

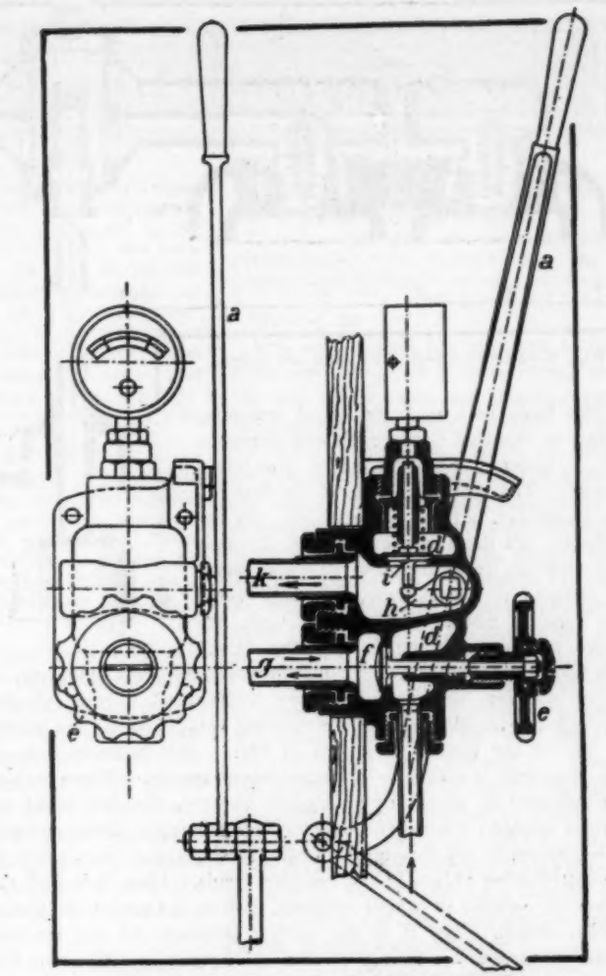


Fig. 3.—Details of the dashboard control.

Pressure Useful in Other Ways.—Having a large tank of highly compressed air handy is useful in many other ways. For instance, for inflating tires, the autoist would take a chance on starting with less air and utilize a part of the tankful to inflate his tires. In many other ways this would be useful, but with exhaust gases in the tank most drivers would hesitate to use this source of pressure.

There are other systems which while using a part of the apparatus above described, do not use all of it, and consequently differ somewhat in their action. One that was given publicity recently is based on the assumption that when the spark and throttle are correctly manipulated just before stopping all of the cylinders but one will contain an explosive mixture. Granting that this is so, all that is necessary is a spark in the cylinder in which the piston is in the proper position for firing. This spark is effected by disengaging the driving gear and throwing the magneto armature around to a contact, the arrangement being such that on starting, the magneto gear drops back into its proper position and ignition proceeds as usual.

Latest Device Combines Electric and Pressure Methods.—The most recent starting device is in the nature of a combination of the stored pressure and the electrically operated devices. This is an American product, made in the Middle West, and very recently placed on the market, after two years of experimentation and successful tests.

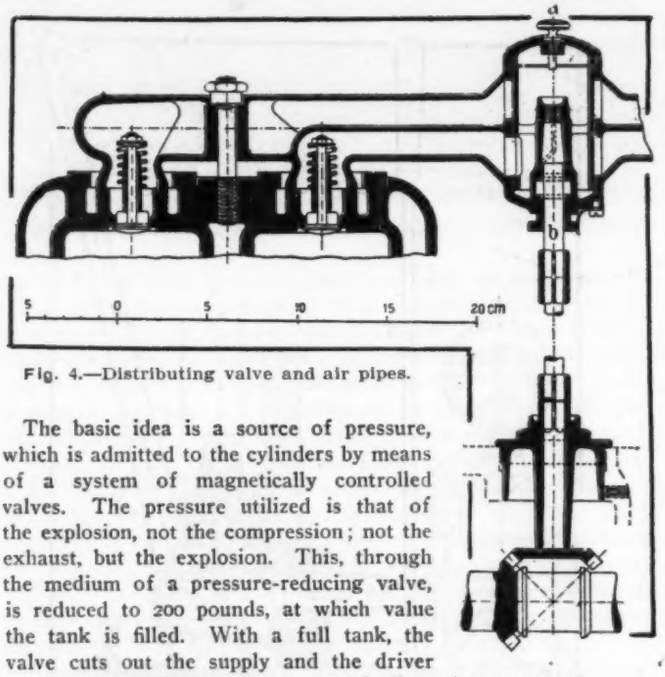


Fig. 4.—Distributing valve and air pipes.

The basic idea is a source of pressure, which is admitted to the cylinders by means of a system of magnetically controlled valves. The pressure utilized is that of the explosion, not the compression; not the exhaust, but the explosion. This, through the medium of a pressure-reducing valve, is reduced to 200 pounds, at which value the tank is filled. With a full tank, the valve cuts out the supply and the driver can then close off the valve communicating with the cylinders.

For starting, this fluid pressure is admitted to the cylinder through the medium of the distributing valves, which are placed on top of the engine as shown in Fig. 5, this being a view of the apparatus applied to an automobile engine. These valves are operated by means of an electric current, diverted from the regular ignition source, the only necessity being a direct current. This current is led through an ordinary timer and from there to the distributing valves in the cylinder heads. Thus it is that the valves are opened in proper rotation, each at the top of the piston stroke, which, while it is the correct position for the igniting spark in ordinary running, is also the correct position for the starting effort. So through the medium of the magnetically controlled valves the pressure is introduced to the proper cylinder at the proper moment. In the figure, *A A* are the magnetically controlled valves, to which the wires *D D* lead. *B* is the supply pipe from the storage tank. The shutoff valves are operated by a hand lever on the dashboard. *C* shows these, and just above them may be seen the operating rod. If a car has a double ignition system, the battery-timer system may be used for the starting by putting the starting switch in that circuit. Then by throwing the ignition switch to the battery and timer, and the starting switch to the starting position, the gas is admitted to the proper cylinder, the engine is started, and the ignition switch may be thrown over to the running position, whatever that may be, and the starting switch may be cut out.

Fig. 5.—Combination system applied to an engine.

This describes briefly the important features and method of operation of the principal forms of self-starting devices now in use. From a survey of these it is a safe prediction that from this time on each succeeding year will see more and more self-starters fitted to cars and working successfully.

CLEVELAND'S TRADE BAROMETER O. K.

CLEVELAND, March 29.—Things are "looking up" in the trade in this city, and from present indications 1909 will be the finest selling season ever enjoyed by the trade in northern Ohio. Every retailer, no matter whether he is selling cars or accessories, is doing good business, while the factories are all pushed to their limit.

The trade barometer in this city is steadily on the upward trend. No clearer indication of this is to be found than in the altered appearance of Cleveland's "auto row." The empty stores are gone, and in their places are appearing new concerns, already doing a good business. Enlargements and alterations are under way, while many companies heretofore located further down town are moving onto the avenue. Among the latter are the Pennsylvania Rubber & Supply Co., now located at 1843-45 Euclid, and the D. E. Foote Rubber Co., whose new address is 1837 Euclid. The new Firestone Tire & Rubber Co. is about ready to open its doors at 1930, while the Hammer & Hull Co. have located at 1841, the latter concern doing a general plating and repair business, devoted chiefly to fenders, pans and other metal parts.

One of the new concerns to exploit a car is the Avenue Motor Car Co., 1806 Euclid, agents for the Oakland. The Weddel House garage has taken the agency for the Inter-State in addition to the Regal. A number of other machines are scheduled for an early appearance, it is said. But the best of all is found in the fact that good, solid business is being done, although the weather does not allow of suitable demonstrations.

MAXWELLS NEED MUCH RAW MATERIAL.

Few people realize the tremendous quantity of raw material used by a large automobile concern; nor is this material confined to metals and those materials ordinarily associated with automobiles. To give an idea of the size of this business, the Maxwell-Briscoe Motor Co. is soliciting bids on material for the building of 12,000 cars. Among the articles enumerated are 200 tons of aluminum castings and 150 tons of brass castings. The babbitt metal that goes into the bearings alone is in excess of 50 tons, while the brass tubing that is used so extensively in automobile construction figures up something like 126,000 feet, or approximately 25 miles. In other words, enough tubing will be used on Maxwell automobiles to extend from New York to Tarrytown. The rivets alone will weigh over 30 tons.

Nor are the bids confined to metals. For example, 13,000 hides will be used for upholstering and trimming. Materials for tops call for over 40,000 yards. Then there is the iron and steel, of course, the biggest factor, 1,000 tons of steel bars, 800 tons of malleable iron, and so it goes. In special steels which play such an important part in the building of an automobile, the bids call for 50 tons of chrome nickel steel and 50 tons of nickel steel.

Although various modifications have been agreed to by the German Government commission in discussion on the Motor Liability law, yet the resolution agreed to prohibiting racing on the road will come as a severe blow to the sport, should it be passed by the imperial diet. The spirit controlling the diet is on the whole not favorable to automobilism, and should this measure go through, it will mean a very scanty European program. This season would probably not witness any big road racing in the Fatherland.

Letters Interesting and Instructive

TO VAPORIZE POOR GASOLINE.

Editor THE AUTOMOBILE:

[1,810.]—Please advise me through "Letters Interesting and Instructive," why gasoline at 72 gravity is better than that of a lower gravity, say 64, and if there is any way of doctoring up poor quality or low gravity gasoline to a higher point of efficiency. G. A. J.

San Francisco.

The density, or, as you have called it, the gravity, of the fuel really measures the vaporizing ability. This may be stated otherwise by saying that if the fuel is heavy, the work of converting it into a gas will be more difficult and will require more oxygen. It may be supplied in the form of any substance known to be rich in that element, as, for instance, picric acid. While this will allow the use of a low grade fuel for equal results, or if used with ordinary fuel (72 degrees), will give superior results, its use should be discouraged, as the resultant mixture is highly explosive under all conditions. Also, the other constituents of the acid are left in the cylinder as a deposit and the liquid itself is very expensive.

You can help yourself with low-grade fuel by the use of pure oxygen as put up in tanks, feeding it to the carbureter in small quantities. Air, as you know, carries only 20 per cent. oxygen by volume, or 23 per cent. by weight, the rest being foreign matter as far as vaporizing the fuel is concerned. Why use this medium, when you can use a pure oxygen with no foreign matter and a consequently improved efficiency? All this, providing you are willing to pay the bill.

NEW AIR PROPELLER BRAKE.

Editor THE AUTOMOBILE:

[1,811.]—I wish to call your attention to the article that appears in "The Automobile" of March 18, page 469, entitled, "Features of new air propeller brake." If I understand this article right, the air propeller is driven by the roadwheels through the gearset and propeller shaft.

Further on is stated, "There is one other advantage to be taken into account in connection with brakes which receive their 'purchase' by way of opposition in the air, i.e., it does not matter at all if the wheels lose their tractive ability, since the fan brakes would still be in a position to work regardless of the tractive ability of the road wheels. Indeed, the car, fitted out in this fashion, could be controlled even if the wheels might slip, so that the conventional brakes would fail to work, due to loss of traction on a grade."

Now, if the "fan" is driven from the rear wheels and these slip, does it seem reasonable to you that the "fan" should have any effect on the car? The way I understand that the "fan" is constructed, it is not its resistance to the air that has the desired braking effect on the car, but the resistance to the turning of the rear wheels caused by the power consumed in running the "fan." On the other hand, if the "fan" was driven by the power of the motor, the "fan" would not have any effect on the car at all, as far as I can see. In the latter case, the only effect that the "fan" would have on the car proper would be a tendency to turn the car in the opposite direction to that of the "fan" if it is of large capacity. In my experience of hilly driving, I have always found it most economical to use the engine as a brake, and I believe it just as effective as the "air propeller" referred to. The "fan" would also be a bad "dustmaker."

I also wish to answer letter No. 1,795 in the same issue regarding signals, I have used the following around here with good results; one blast for request to pass; two, for turning out or turning corner to the right; three, for turning out or turning corner to the left; two long and two short for road or street crossing. ARTHUR BEIJER.

Phillips, Wis.

To correct you on the subject of this new brake, it will be necessary to state that the article relative to it from our Paris correspondent was rather misleading, in that the driving mechanism was not fully explained. The fan brake is driven through the transmission and the lever controlling it allows the use with any speed provided in the gearbox. So it is plain that whether the wheels slip or not, the brake continues to work, providing the engine is running.

Now, as to the action of the propeller, it is so set as to tend to propel the car in a backward direction just as the reverse speed would. Descending a long hill, the force of gravity urges the car along at a considerable speed. In this case, the air brake lever is thrown into low speed and the power of the motor exerted against the downward tendency. If this were not sufficient, the second or higher speed would be thrown in, and the air brake rotated at a higher speed, with consequently greater retardation of the car. Ultimately, if necessary, the high speed can be used and the whole power of the motor applied to the purpose of braking. The device thus has an enormous advantage over the ordinary practice of shutting off the spark and using the compression strokes of the engine as a brake, in the ratio of the total maximum power to the comparatively small amount of power required to compress the charge.

In addition, the method of driving as you understood it will operate correctly. If the wheels slip, and the car momentarily accelerates, the extra speed turns the fan faster, which in turn increases the backward tendency, and thus offsets the slight gain in the forward direction. To sum the matter up, the engine turns the rear wheels and through them the fan. For the slope to increase this, it must increase the fan speed, which makes it necessary to increase the engine speed, which is apparently impossible.

STEEL TUBING FOR CYLINDERS.

Editor THE AUTOMOBILE:

[1,812.]—Will you please state in your valued paper if it be possible to use cold-drawn steel tubing in motor cylinders? WILLIAM HILLIARD.

Chicago, Ill.

Yes, steel tubing not only can be but has been used on some French racing motors. Its use necessitates an attached cylinder head and applied water jackets. The former is a construction which all designers do not favor. Another point is that while the action of cast-iron pistons at high temperatures rubbing on cast-iron cylinder walls is known, the same cannot be said for iron pistons on steel walls. The reverse of this, steel pistons in iron cylinders, has been tried and abandoned by several noted French firms.

This trouble is brought about by the difference in the two coefficients of expansion, the linear coefficient for cast iron being .00000556; for steel, .00000689. The cubical coefficient is three times this, or iron, .00001668; steel, .00002067. From this a piston which was just right for a four-inch cylinder at 70 degrees (.004 inch small), would be loose (.006 inch small) at 470. With larger cylinders and higher temperatures, it rises in proportion.

SHOULD FRONT WHEELS TOE IN?

Editor THE AUTOMOBILE:

[1,813.]—On page 464, March 18 issue, in the article on steering gears by Mr. Fay, appears the statement that "if one (front) wheel toes in and the other is parallel with the roadway it will be very difficult indeed to steer the car." Also the statement that each of the front wheels should be adjusted to toe in exactly the same amount.

Will Mr. Fay please state what direction the car will tend to follow under the condition first named above, and will he please explain in what respect this condition differs from that of an intentional deflection of one degree, or thereabouts, produced by the driver to alter the course of the car? Are we to suppose that the car will steer perfectly when running straight ahead with each front wheel toeing in one degree, but will become partially unsteerable as soon as the driver turns the steering wheel till one of the front wheels is "parallel with the roadway"? When it comes to that, what has the direction of the roadway to do with the matter at all?

The article on acetylene generators in your issue of March 25 is full of inaccuracies. Calcium carbide is not soluble in water; it is not deliquescent, and the color of the commercial article is not dark brown, but gray. Overheating is alluded to as a probable and important source of trouble, but nothing useful is said about its cause or how it may be avoided. A good generator will not overheat under any circumstances. The drawing of the "conventional type of generator" shows a water jacket, but nothing is said in the text regarding the utility or otherwise of this jacket. The statement is made that a generator will afford an ade-

quate supply of gas at the right pressure, "cool and free from soot, sand, tar, and steam," provided the generator is big enough for the work and if provision is made to "scrub, cool, and purify the gas as it is delivered into the piping system." This is simply rubbish. No automobile generator, within the writer's knowledge, contains any provision whatever for scrubbing the gas, nor any further provision for purifying it than the usual hair filter. A correctly designed generator does not need such provisions, and a poor one is not helped by them. Neither is it true that the size of the generator has anything to do with its ability to maintain the correct pressure on the gas line, except that in a small generator the water is more rapidly consumed and the pressure therefore falls faster than if the generator be of good size.

The statement that the water soon gets hot as a result of the heat generated by the "dissolving" of the carbide, is equally incorrect. The water gets slightly warm; no more.

The allusion to the "sludge" resulting from the action of the generator suggests that possibly the author's experience is limited to the generators in vogue five years ago, or to the cheap brass cans which are "thrown in" by the makers of the cheap class of cars, and (usually) thrown out by the purchaser after one or two attempts to make them work. In a good modern generator no sludge is formed, the lime taking the form of a dry powder.

In warning the reader against slipshod piping, the author forgot to state that a trap should be provided at the lowest point of the piping system which should hold two or three teaspoonfuls of water without interfering with the flow of gas. Such a trap rarely needs to be drained, as the condensed moisture evaporates between runs.

HERBERT L. TOWLE.

New York City.

In the Fay article in relation to steering, it is clearly indicated that the front road wheels should be set to toe in slightly, rather than to be set indifferently. In another part of the same article it was pointed out that instability begins when a car is diverted out of its straight course. Any statement in an article should be weighed in the presence of other statements bearing on the subject and intended to amplify.

Account must be taken of acetylene generators of a class that do not come up to Mr. Towle's standard. If a generator is so good that it will not give trouble, the possessor will be wasting his time on the article to which reference is made.

TIRE CAPACITY EXPLAINED.

Editor THE AUTOMOBILE:

[1,814.]—Will you kindly give me the rule or formula by which the carrying capacity of an automobile tire is determined? I have seen tables published from time to time, but am unable to arrive at a hard and fast rule for calculating weights from sizes. Take, for example, three tires: 36 by 3 1-2, 32 by 3 1-2, and 30 by 3 1-2. In actual experience, the last size will outwear the other two, but in running over small depressions, the larger tire is easier on the passengers.

I believe it would be interesting to your readers to have a full discussion of this subject, as the wearing properties may be vastly different from the weight sustaining powers. For instance, a 36 by 3 1-2 tire might sustain more weight while standing idle than a 30 by 3 1-2, yet the smaller diameter would outwear it.

CHARLES V. CRITCHFIELD,

Mt. Vernon, O.

There are two questions to be considered: The ability of the tire to withstand pressure from within, and the weight-carrying ability when properly inflated. The wearing qualities vary with different makes, with different sizes, and with different diameters. This, too, being a question of relative ability cannot be discussed in these columns.

The fabric used in tires varies, but in general good fabric will stand a breaking strain of about 350 pounds per square inch. In a tire having six plies, there is a strength of six times this, or 2,100 pounds per square inch. From this it is apparent that there is very little danger from any ordinary pressure.

The weight on a tire is carried not by the tire itself, but by the air pressure within, the tire simply acting as an envelope to retain this air where it is wanted. If there is not sufficient air pressure to bear the weight, the tire must suffer. Tire manufacturers seem to agree very closely on the carrying capacity for the sizes herewith mentioned:

Size.	Carrying Capacity.
30 x 3½	450 pounds
	500 pounds
	450 (front) 550 (rear)
32 x 3½	550 pounds
	600 pounds
	500 (front) 625 (rear)
36 x 3½	600 pounds
	600 pounds
	600 (front) 750 (rear)

These figures are from three firms, differing as to location, style of tire made, and quality of the same.

HINTS FOR WORTHY CONTESTS.

Editor THE AUTOMOBILE:

[1,815.]—Having just read an article in the March 18 issue entitled, "The More the Haste, the Less the Speed," I would like to make a few suggestions along the same line. We will all agree with the writer of the article that in road races and hill climbs, where speed is the main object, the direct benefit to the buying public is very small; still, at the same time, we must realize that the strength and endurance of a car is tested under these circumstances more than under any other. Therefore, it is a positive fact that the designer is greatly benefited by long, high-speed races and hill climbs, and if the manufacturer will use the material and design in his commercial car that he does in his racer, granting, of course, he makes minor changes to conform to the two distinct purposes involved, the purchaser can rest assured that the car he builds will be one of the best.

Speed contests serve their useful purpose and give a sporting interest to the business; so let them continue, but at the same time give the prospective buyer a contest that will be of special benefit to him. The endurance contest is all right, but the bystander cannot see it clear through. He can see one car, then another pass, but unless he is very much interested he never knows who won, or why. He wants a contest wherein he can see the start and finish and knows who wins, finally.

The coasting contest suggested is along the proper line, but too easily imposed upon. We all remember the old coasting contest of bicycle days when the machines weighed several times what a standard stock machine would be permitted to weigh, bearings were adjusted so loose that they would not have stood up to one hour's hard work, chains were left loose, and in many cases dropped off the sprockets while coasting. All this was done to eliminate friction, and the same things and many more would be done to an automobile under the rules suggested. If the clutch was disengaged, wherein would the motor, the vital part of a car, and its attachments be tested? If the clutch were engaged, there would be a hundred ways to beat around the rules, so that the contest would demonstrate nothing.

One of the most desirable things in an automobile is a flexible motor and power at motor speed. To bring out these points, I would suggest a hill climb run as follows:

Let each car climb the hill for speed on high gear; then let each car climb the hill on high gear at slow speed. Make it necessary that cars start on high and keep the clutch in after it is once set, the touching of clutch, pedal, or lever being cause for disqualification. The result of the contest would be determined by proportioning of the results of the two climbs.

Another method would be to have the time of the cars taken at a half-way mark; also at the top of the grade under the following conditions: Compel the cars to start on high gear at the foot of the grade and proceed as slow as possible to the half-way mark, from there on make it a speed contest, but require that the high speed be used all the way. The final showing would be computed on the times shown at both places.

In working up a formula for either of these contests, the writer would favor one giving the advantage to the car that made the best showing at slow speed, because we all know that the motor that is so built that we can drive in deep mud or gravel, or on a grade for a long distance on high gear without having to race through at a dangerous pace, is to be preferred to the one that must use a lower gear or high car speed to get engine speed in order to obtain power. Therefore, give the motor that can develop power at slow speed a chance to show its worth. But it must have a reasonable amount of speed; therefore make it work at both. In fact, in order to prevent exceptionally low gear ratios on high, it might be well to compel the cars to compete in short speed trials on the level and use this time in the final results. Such a contest would not only test the cars in every respect, but also the skill of the driver and be beneficial to all.

Peru, Ind. H. M. CONROW.

VALUE OF COASTING TEST.

Editor THE AUTOMOBILE:

[1,816.]—Your March 18 issue with the article, "The More the Haste, the Less the Speed," by C. E. Duryea, if more than casually read suggests many pertinent thoughts. His article contains some of the ideas in my letter, published a year ago.

It occurs to me now that a "coasting test" might be further enhanced by the following: Take the speed of the car over the last 100 feet by approved automatic methods and compare it with the reading of the speedometer taken by an official observer. When the car crosses the finish wire of the speed test, automatically fire a gun, and measure the time and distance required by the driver to bring his car to a stop.

Comparisons are often odious, and might sometimes be so in tests like these.

Chicago. Dr. M. A. MARTIN.

Spring's Advent Stimulates Club Activity

LONG ISLANDERS INITIATE NEW CLUB HOUSE.

BROOKLYN, March 29.—Situated literally "at the gateway of Long Island," at the entrance to Prospect Park and the Eastern Parkway, the new club house of the Long Island Automobile Club was opened officially on last Friday evening, with a "biggest" smoker and vaudeville entertainment. Fully five hundred persons attended, members bringing their friends, the new rooms inspected, and the varied programme thoroughly enjoyed.

For several years the club has been located at 360 Cumberland street, but recently the new home was secured at 920-922 Union street, a well equipped garage being taken, the four floors and basement renovated and rearranged so that the second floor could be used for the club members, while the other three floors and the basement are used for storing and caring for the machines. This means of combining the two features of the club has given a great deal of satisfaction, and already the garage space is pretty well taken. Cars have been stored in the building for nearly a month but the club rooms have just been finished.

The second floor is spacious enough to be divided into four parts, a billiard and pool room, a reading and writing room, a dining room and offices. They are all separated by portable partitions, and when entertainments are scheduled, these are removed so that the whole floor can be used, and stage is wheeled into position. The color scheme is green and white, with a choice selection of automobiling pictures on the walls, cabinets for trophies included in the furniture, and nothing left undone to provide for the comfort and pleasure of the members. The kitchen installed is large enough to handle a banquet, and regular dinners will be served from it.

Once a month, or nearly so, a vaudeville entertainment is given, under the direction of Edward Melvin, who is chairman of the house committee. President Frank G. Webb opened the club rooms with an address of welcome. The other officers are William P. Schimpf, vice-president; Charles T. Cuff, treasurer; Herbert G. Andrews, secretary. A ladies' night is set for April 16.

WILKES-BARRE GETS NATIONAL HILL CLIMB.

WILKES-BARRE, PA., March 29.—That the annual hill climbing contest of the Wilkes-Barre Automobile Club on the Giant's Despair Mountain will be an event of national character has been confirmed through the receipt of the sanction for the national hill climb from Frank B. Hower, chairman of the A. A. A. Contest Board. With this in the hands of President George F. Lee, of the local club, the enthusiastic autoists of this city will at once begin the preparations for the contest, which will undoubtedly be one of the most important events in the automobile world.

As May 30 comes this year on a Sunday, it has been decided to hold the contest on Monday, May 31, and it is expected that not only the usual quota of powerful cars and drivers will be present, but many new ones, and perhaps some foreign cracks, Fred J. Wagner, the famous A. A. A. starter, who has officiated in that capacity with great success here before, will have that position this year, and will be given more authority and more of the preparatory work than heretofore.

GRAND RAPIDS CLUB CHOOSES NEW HOME.

GRAND RAPIDS, MICH., March 29.—The members of the Grand Rapids Automobile Club unanimously decided at their meeting recently on Cascade for their new clubhouse. This is the same house used two years ago, but a new road leading from the Thornapple River to the house has been built, and the house will be completely refurnished. It will be ready for use May 1.

HARRISBURG CLUB MAY HAVE TIRE TEST.

HARRISBURG, PA., March 29.—In response to the frequent proposal of combining a tire contest with an endurance run, the Motor Club of Harrisburg is considering having this feature in connection with its annual contest next May. Secretary W. R. Douglass has taken up the matter of rules with some manufactures, and George M. Stadelman, secreary of the Goodyear Rubber & Tire Company, has suggested the following:

All tires used in the contest should be purchased on the open market, which prevents the use of special tires made for the purpose, and which are not sold regularly to the trade.

Each tire manufacturer should have the right to designate the particular style of tire he manufactures to be used in the contest.

[By way of explanation, we wish to state that this company makes two forms of tires: detachable with straight sides, and clincher with beaded sides. We make the former because we believe it to be the most practical, durable and trouble-proof design. We make the latter because there is a demand for a tire to fit regular clincher rims, on which our detachable form of tire cannot be used. For this reason, it would be unfair to compel this company to enter clincher tires in the contest, when we are positive that our detachable form of tire is better suited for the purpose, and is the one that we are urging automobilists to buy.]

All time lost for stops occasioned by tires should be penalized a certain number of points for delay occasioned by punctures; a heavier penalty occasioned by blow-outs; and a still heavier penalty for loss of time occasioned by tires blowing off the rim.

We would allow each car three tires for rear wheels, and three tires for the front wheels, which would provide one spare for each wheel without penalizing for anything but time lost; but should a car have to use the seventh casing, or more, a very heavy penalty should be inflicted for each additional casing in addition to time lost for charging.

There should be official observers to check the tire losses in a similar manner to the way each car's losses are checked. The tire companies competing should have representatives in the races, but not on cars equipped with their own tires.

A duplicate set of rules has been sent by Mr. Stadelman to the Contest Board of the A. A. A., suggesting a similar tire contest for the Glidden Tour.

WHAT ONE CLUB HAS DONE IN ITS VICINITY.

PHILADELPHIA, March 29.—Chairman W. O. Griffith, of the routes, maps and signs committee of the Automobile Club of Philadelphia, has outlined a comprehensive campaign for the coming year. Four sections of the club's map scheme are under way, and will probably be published in the course of a year.

The new club route book of 213 pages contains 180 pages devoted to new routes and maps. An idea of the enormous amount of work done by this committee last year may be had from the annual report of the board of governors, which showed a total of nearly 1,100 signs of various classes placed in position, including mileage, direction and warning signs. This means that no less than seven main through routes and about a score of minor routes out of this city have been clearly and thoroughly marked at all crossroads and forks, dangerous hills, sharp turns, and with warnings where the authorities are particularly severe. The end of the coming year will see this result multiplied by two, if Chairman Griffith can secure money to carry on the work.

GERMANTOWN'S CLUB AFTER OFFENDERS.

PHILADELPHIA, March 29.—In an effort to put a stop to the numerous gross violations of the speed ordinances in this city and suburbs, the committee on Automobile affairs of the Automobile Club of Germantown is urging members of the club to inform Chairman C. H. Wheeler immediately of all such violations, giving the number of the car and the particulars.

NOW BALTIMORE PLANS AN ENDURANCE RUN.

BALTIMORE, March 29.—These are busy days for the members of the Automobile Club of Maryland. They are now making preparations for holding a tour, or efficiency contest during the month of May, and Secretary Frank Darling has already prepared a tentative plan and route. He proposes that the course be from this city to Ridgeville, and thence to Frederick, a distance of 48 miles, taking the cars over roads that at their best are only fair. On the return trip, at Eccelston station, there is an exceedingly steep hill, and Mr. Darling's plans call for timing the cars on the mile and a half climb.

The cars on the outbound trip would pass through Lewistown, Catoctin, Thurmont, Emmitsburg and Gettysburg, a distance of 33 miles from Frederick. The road from Emmitsburg to Gettysburg is rather rough, and would be a good test for the cars. Returning the cars would go through Littlestown, Westminster and via the Valley road, which comprises about 35 miles. This would make the entire distance of travel about 115 miles, which the cars would be expected to make within seven or eight hours. The rules specify that all hoods shall be sealed and the cars placed in a garage, under the care of the contest committee, until the machines have been examined for loose parts and other mishaps that might occur in consequence of the run.

QUAKER CITY M. C. WANTS A TRACK RACE.

PHILADELPHIA, March 29.—The most surprising bit of news from the various local clubs' headquarters the past week was the announcement by the Quaker City Motor Club that a 24-hour track race would be run off under its auspices—probably at Point Breeze track—on June 11 and 12. In the light of the A. A. A.'s announced determination to discourage recing on mile circular tracks, this looked very much like open rebellion or a decidedly marked change of opinion on the part of the National Contest Board. Certainly the Quakers appear to be cocksure of securing the necessary sanction, and are already at work on the preliminaries of the race, for which it is claimed a sufficient number of entries had previously been promised to insure its success from that standpoint.

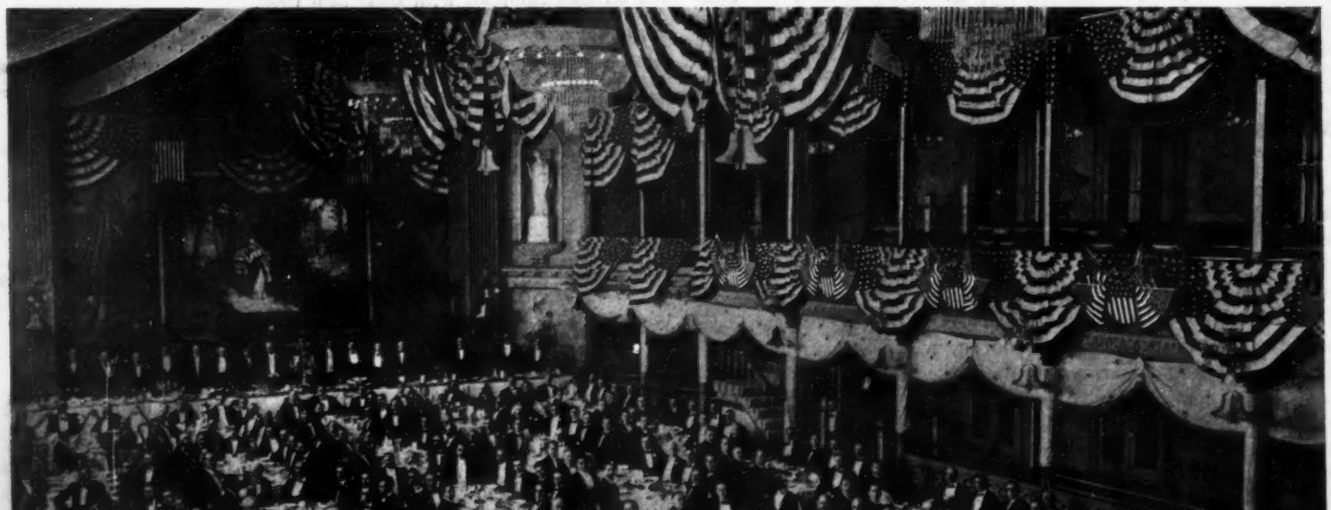
NEW JERSEY RUN FOR AMATEURS ONLY.

NEWARK, N. J., March 29.—For amateur drivers only, members of the club who are not connected with the trade, the New Jersey Automobile and Motor Club, is arranging to hold its third annual endurance contest over a ninety-five mile circuit, with two laps, giving a total distance of 190 miles, on May, 22, if plans as already outlined prove thoroughly feasible. At this time of the year when the trade members of the club are particularly busy, it has been decided to put them all on an equal footing, by making the affair for private owners.

The scheme as considered best by the club, is to have the cars start from this city at 8 o'clock in the morning, running on a schedule of 19 miles an hour, and checking in at two places on each round, first Hackettstown and then Newark, arriving in this city on the first lap at 1 P. M., and on the final round at 6 o'clock in the evening. Pathfinders will go over the route to finally map it out, and as at present suggested, the ones chosen will be very popular, inasmuch as almost all kinds of road conditions, except very soft mud, will be found. There will be plenty of pleasant touring over the fine macadam roads, some strenuous traveling over rocky roads in the country, and at least one good hard climb on each trip over Schooley's mountain.

Hackettstown is 42½ miles from the start, exactly half way, and the proposed route would take the contestants out of Newark, then through Irvington, Chatham, Madison, Morristown, Mendham, Chester, German Valley, over the mountain and down into Hackettstown. The second stretch would take them up to Allamuchy, where a turn is made and the beaten path left for time, while the road is rocky enough to give the cars and drivers a good test. The course leads to Stanhope, through Port Morris and Dover. At this point there would be a choice of routes, one leading to Morristown and thence to Newark over the out-bound route. It is more likely that one leading from Dover through Rockaway, Denville, Pine Brook, and Montclair will be taken. This course would be covered twice, and a number of valuable prizes will be given for the best performances.

The committee in charge of the contest is: H. A. Bonnell, chairman; F. A. Croselmire, A. B. Le Massena, H. A. Bowman and D. C. Reynolds.



Sixth Annual Banquet of the New Jersey Automobile and Motor Club, Krueger's Auditorium, Newark, March 18.

Tenth Annual Banquet of the Automobile Club of America, Held March 25, at the Waldorf-Astoria, New York City.

UNDETERRED by the necessity of taking out a license and unmarked by a traveling number, the Governor of New Jersey on the evening of March 25 crossed the Hudson River and entered the adjoining commonwealth of New York State. Comfortably conveyed in a motor-driven vehicle to the Waldorf-Astoria, Governor Fort became the guest of honor at the tenth annual banquet of the Automobile Club of America. Speaking more or less impromptu, 'tis possible that New Jersey's chief executive may have been carried away by the enthusiasm of the moment and given utterance to sentiments to which heretofore he had been a stranger, for certainly his ideas have undergone considerable modification since the night a year ago when at the dinner of the New Jersey Automobile and Motor Club the then president of the American Automobile Association, William H. Hotchkiss, handled the New Jersey law so scathingly that the Governor impetuously took it upon himself to defend a law in the making of which he had had nothing to do. Then he said he believed in uniform laws, and that this could be brought about by the other States copying New Jersey's excellent statutes. At the A. C. A. function Governor Fort said:

I want to help, as I believe the New Jersey Legislature does, every reasonable act for the bettering of the automobile interests and of the operation of the automobile in our State. The problem is only to be solved in my judgment in one way. We have been doing too many things in this republic of ours by single States.

Interstate agreements are provided for under the constitution of the United States. With the consent of Congress any two States may make any agreement they please between themselves, and if New York and New Jersey and Connecticut and Rhode Island and Massachusetts and Maryland shall agree together on a method of travel by automobiles and a uniform fee for all these States, and it shall be approved, we shall need no further legislation on the subject, and we shall have one fee for all these States in the East.

Recently, through the initiative principally of Governor Hughes, there was held a conference of the commissioners on uniform laws of New York, New Jersey, Connecticut and Massachusetts, the result being the drafting of an automobile law intended to be acceptable to those commonwealths. This measure, it is stated, is shortly to be introduced at Albany, with chances favorable for its passage, though perhaps modified in minor particulars.

In the course of his talk of half an hour Governor Fort said among other things:

The automobile is here to stay, and Legislatures and all others may as well recognize that fact. That being a fact, we must have laws on the subject of speed that are clear and simple. They must be so that every man can read and understand them and make no excuse when he violates them.

We must have a speed limit such as shall not create a race of lawbreakers. I am opposed to putting in the statutes of our States or in the acts of Congress that which every man knows nobody intends to observe. It is not fair to the man who uses the highway, it is not fair to the public morality of the State to put restrictions in laws that cannot ordinarily be observed, I would have the laws fair and just to every man, and then I would enforce them. Every vehicle upon the public highway should carry a light of some kind. Every drunken driver should be deprived of his license and punished in some way for being drunk.

No summary arrest should be permitted upon the highway of a man driving an automobile, continued Governor Fort. He should only be stopped for the purpose of taking his number, and let the orderly proceeding in court go on later. No trap should be set anywhere for the purpose of catching people on the highway.

Our fees over in New Jersey I believe have been criticized. I believe the sentiment in our State to-day is in favor of making the laws so that you can come without paying extra license fees. Why shouldn't you come to New Jersey?

A Voice: "Because you rob us!"

We want you to come, and we are going to try and make it so that you will come.

Resentment at the attitude of the New Jersey lawmakers in ref-

erence to automobiling has been undisguised on numerous occasions, and the reference to being robbed met with approving laughter from parts of the big ballroom, as did other comments of irrepressibles who at times may have felt financially the sting of the Jersey constables.

Judge E. H. Gary, president of the A. C. A., divided the guests' table, those sitting with him being Governor Fort, ex-presidents Dave Hennen Morris, Winthrop E. Scarritt and A. R. Shattuck; Colonel John Jacob Astor, George F. Chamberlin, William G. McAdoo, William Pierson Hamilton, Cortlandt Field Bishop, Henry Sanderson, Robert Lee Morrell, Dr. Schuyler Skaats Wheeler, William H. Barnard, Colonel Austen Colgate, Duncan McDonald, of Montreal, and the Hon. Beverley Robinson.

J. B. R. Smith, commissioner of motor vehicles for New Jersey, was an interested listener, and others in evidence included Jefferson deMont Thompson, Charles J. Glidden, Robert Graves, Alan R. Hawley, Captain Homer W. Hedge, R. A. C. Smith, Philip T. Dodge, H. K. Burras, W. D. Gash, H. H. Law, C. J. Obermayer, Alfred Reeves, E. P. Chalfant, H. M. Swetland, Benjamin Briscoe, J. D. Maxwell, S. T. Davis, Jr., A. L. Riker, R. D. Garden, S. E. Stevens, Carl H. Page, Percy Owen, Horace DeLisser, Walter Christie, Frank Eveland, John Van Benschoten, F. D. Dorman, General John T. Cutting, Harry G. Fisk, Peter Fogarty, E. Rand Hollander, William B. Hurlburt, James Joyce, J. M. Lansden, A. L. McMurtry, E. J. McShane, F. E. Moscovics, E. S. Partridge, H. W. Nuckols, K. C. Pardee, Orrel A. Parker, A. P. Palmer, John F. Plummer, Jr., C. R. Teaboldt, Harry Unwin and A. H. Whiting.

Aside from the general remarks of Judge Gary about the club and the rather unexpected expressions from Governor Fort, there was no speechmaking, the others scheduled failing to appear. These were the Hon. Chauncey M. Depew, Congressman J. Van Vechten Olcott and State Senators Allds and Hill. But Chairman Ely of the banquet committee had provided several grand opera singers and artists who may have met the needs of the occasion in a manner more pleasing to the majority than would have been after dinner words of wisdom on automobile legislation, which subject the many are ever inclined to leave in the hands of those who find satisfaction in working for the good of the cause. One big disappointment came in the announcement that at the last moment Miss Mary Garden could not be present owing to a hard cold. Madame Doria and Mlle. Trentini, one a contralto and the other a soprano, were substitutes, with Signor Sammarco and Herr Meizel also contributing brilliantly, the first with some exquisite violin playing. Some 450 attended the banquet. The souvenirs were elaborate menu cards.

THE AUTOMOBILE CALENDAR

AMERICAN.

Shows.

April 10-17.....Brooklyn, N. Y., Clermont Rink, First Annual Automobile Show, Long Island Automobile Club.
April 17-24.....Montreal, St. Lawrence Hall, Fourth Annual Automobile Show, auspices of Automobile Club of Canada. R. M. Jaffray, Manager.

Races, Hill-climbs, Etc.

April 22.....Chattanooga, Tenn., Hill Climb on Lookout Mountain, Lookout Mountain Automobile Club.
April 24.....Philadelphia, Roadability Run to Atlantic City, Quaker City Motor Club.
April 26-May 1...New York City, Second Annual Automobile Carnival, New York Automobile Trade Association.
April 26.....New York City, Second Annual Hill Climb, Fort George-New York Automobile Trade Association.
April 28-30.....Pittsburg, Pa., Gazette Times-Chronicle Telegraph Three-Day Endurance Run. Indorsed by Automobile Dealers' Association.
April 30.....New York City, Endurance Run, New York Automobile Trade Association.
May 3-6.....Harrisburg, Pa., Third Annual Endurance Run, 700 miles, Washington, Baltimore, Scranton, Motor Club of Harrisburg.
May 10-13.....Detroit, Mich., Four-day Endurance Run, Detroit Automobile Dealers' Association.
May 11-15.....Philadelphia Reliability Run to Pittsburg and Return, Quaker City Motor Club.
May 18-19.....Norristown, Pa., Second Annual Endurance Run, Norristown Automobile Club, to Hagerstown, Md.
May 22.....Hartford, Conn., 200-Mile Endurance Run, Hartford Automobile Club.
May 22.....Newark, N. J., Third Annual Endurance Contest, New Jersey Automobile and Motor Club, 190 Miles.
May 31.....Wilkes-Barre, Pa., Annual Hill Climb, Giants' Despair Mountain, Wilkes-Barre Automobile Club.
May 31.....Bridgeport, Conn., Annual Hill Climb, Sport Hill, Automobile Club of Bridgeport.
June 1.....New York City, Start of Transcontinental Contest to Seattle, for Alaska-Yukon-Pacific Exposition, M. Robt. Guggenheim Trophy.
June 11-12.....Philadelphia, 24-Hour Track Race, Quaker City Motor Club.
June 12-14.....New York City, Catskill-Berkshire Endurance Contest, New York Automobile Trade Association.
June 18-19.....Chicago, Stock Chassis Race for Cobe Trophy and Light Car Race.
June 21-26.....Binghamton, N Y., Fourth Annual Endurance Run, Albany, Boston, Hartford, Newburg, Binghampton Automobile Club.
June 22-28.....Albany, N. Y. FifthAnnual Tour, Bretton Woods, Portsmouth, Boston, Albany Automobile Club.
June 24-26.....Montreal, Blue Bonnets Track, Race Meet. R. M. Jaffray, Manager.
July 3 and 5.....Wildwood, N. J., Straightaway Races, Motor Club of Wildwood.
July 4.....Los Angeles, Cal., Southern California Automobile Dealers' Association. Road Races, 250 Miles for Large Cars; 150 Miles for Light Cars.
July 7.....Detroit, Start of Sixth Annual A. A. A. Tour for Glidden Trophy.
Sept. 15.....Denver, Col., Start of Flag to Flag Endurance Run to Mexico City.
Oct. 7.....Philadelphia, Second Annual Stock Chassis, 200-Mile Race, Fairmount Park, Quaker City Motor Club.
Dec. 29-30.....Philadelphia, Fourth Annual Mid-Winter Endurance Contest, Quaker City Motor Club.

FOREIGN.

Races, Hill-climbs, Etc.

March 31-Apr. 14.Italy, Monaco, Annual Motor Boat Regatta and Championships.
April 11-18.....Austria-Hungary, Prague, Automobile Exhibition, Hill Climb at Koenigsaal, Automobile Club of Tcheque.
April 22-30.....France, Paris, Small Commercial Vehicle Competition.
April 26-May 13..Germany, Commercial Vehicle Competition, Kaiserlicher Automobile Club.
April 29.....Sicily, Volturette Races.
May 2.....Sicily, Targa Florio, Automobile Club of Italy.
May 6-9.....Austria, Small Vehicle Competition, Automobile Club of Austria.
May 8-23.....Belgium, Antwerp, Sixth International Automobile, Cycle, Maritime and Fluviatile Exposition.
May 10-15.....Sweden, Industrial Vehicle Competition, Automobile Club of Sweden.
May 20.....Spain, Coupe Catalunya Race for Light Cars, Royal Automobile Club of Spain.
May 26.....Russia, Moscow-St. Petersburg Race, Automobile Club of Russia.
June 10-13.....Germany, Prince Henry Cup Competition.
June 14-19.....Scotland, Annual Scottish Reliability Trials.
June 20.....France, Boulogne-sur-Mer Course, Voiturette Race, Auspices "L'Auto."
July 13-17.....Belgium, Ostend Automobile Race Week.
Aug. 22-29.....France, Reims, Aeroplane Races and Grand Prix, Aero Club of France.
Sept. 5.....France, Mont Venteoux Hill Climb.
Sept. 19.....Austria Semmering Hill Climb.

M. C. A. WON'T SUPPORT CROSS-COUNTRY TEST

NEW YORK, March 30.—Manufacturers and importers of automobiles, in a regular meeting of the Manufacturers' Contest Association, held in this city to-day, after considerable discussion and hearing representatives of the Alaska-Yukon-Pacific Exposition, the Automobile Club of America, and the New York *Times*, decided not to give the support of the recently formed organization in the promotion and running of two proposed transcontinental contests. The M. C. A. stated, however, that it was not opposed to such contests, but inasmuch as the rules for the run to Seattle did not meet with its approval, it did not feel that it should sanction another event, as a rival to the one sanctioned by the Automobile Club of America. This meant the proposed contest of the New York *Times*, the management of which clearly stated that it did not intend to promote any such event, except that it met with the approval of a substantial portion of the automobile industry.

These are the resolutions officially promulgated:

WHEREAS, The Manufacturers' Contest Association advocates and will lend support to races and contests that furnish to the public a basis of the comparative merits of cars and that demonstrate to the manufacturers where improvements can be made in material and construction, to the end that only the best in motor cars may be offered to the buying public; therefore, be it

RESOLVED, That the Manufacturers' Contest Association in meeting decides unanimously that for the following reasons it cannot lend support to the proposed race from New York to Seattle, although sanctioned by the Automobile Club of America, whose right to grant a sanction for this event is unquestioned:

First—The entry blanks distributed among the manufacturers state that it is a "race," and as such it cannot but place a premium on speeding in violation of State laws, which is contrary to the position automobile makers have taken with the various State Legislatures.

Second—The rules on the entry blank, which, among other things, provide that engines, axles, gears, etc., may be changed twice and only the original frame brought to Seattle, are not for the betterment of motor car manufacture.

Third—The entry blank statement, "The first car arriving at Seattle will be declared the winner" presupposes a road race without regard to speed regulations, the prize going to the car whose drivers most consistently and persistently disregard the conditions and laws under which the authorities permit the use of motor cars.

Fourth—Another rule provides that the crew of a car may drive continuously from New York to Seattle, or as nearly so as the endurance of the crew, relaying each other, will permit. The contest would therefore be strung out over a period of hours and days, making it impossible to safeguard the highways and the public for the continuous time necessary.

Fifth—The rules as a whole, or the explanation of the race representatives, do not assure the Manufacturers' Contest Association that the contest will advance either the pastime or the industry.

Sixth—The excellent record of the Automobile Club of America in the sport and industry makes it a matter of regret that it should have given its sanction to the rules that are offered for the government of this proposed race.

Questions of speed and of changing parts of cars seem to be the reasons predominant in influencing the M. C. A. against the contest. The rules do not place a time allowance which would make the contesting cars keep within the various speed laws; and engines, axles, gears, etc., can be changed twice in the trip across America, only the original frame having to be used throughout. While Mills and Moore and Robert Lee Morrell, of the Automobile Club of America, express regret that the manufacturers and importers have taken a stand against the event, they state that nothing shall deter them in the holding of the contest. The management claims positive assurances of enough cars to make the event a success.

Benjamin Briscoe, president of the Association, presided at the M. C. A. meeting, while Howard E. Coffin, chairman of the Rules Committee, was in charge of that section of the organization. A constitution and by-laws were adopted, and the following directors elected: Benjamin Briscoe, Maxwell-Briscoe Motor Co.; William E. Metzger, Everitt-Metzger-Flanders Co.; H. O. Smith, Premier Motor Mfg. Co.; H. E. Coffin, Chalmers-Detroit Motor Co.; Windsor T. White, White Company.

The rules for the Cobe Cup Contest in Chicago and other contests came in for consideration, and the Rules Committee had a prolonged session, which lasted until after midnight. An announcement is expected through the A. A. A. Contest Board.

Those in attendance at the meeting were:

Edgar Apperson, Apperson; A. P. Brush, Buick; H. E. Coffin, Chalmers-Detroit; E. H. Tangeman, Lancia; C. M. Hamilton, Isotta; H. G. Farr, Knox; A. L. Riker, Locomobile; H. A. Lozier and C. H. Emise, Lozier; Benjamin Briscoe, Maxwell; R. H. Croninger, Pennsylvania; G. A. Weidely, Premier; Paul Lacroix, Renault; F. B. Stearns, Stearns; F. A. Barker, Stoddard-Dayton; Walter C. White, White; E. P. Chalfant, A.L.A.M.; Alfred Reeves, A.M.C.M.A.

There were also represented by proxy: Mitchell Motor Car Company, National Motor Vehicle Company, and the Pierce-Arrow Motor Car Company.

Telegrams and letters were received from the following makers, voting against supporting the proposed New York to Seattle contest:

Mora Motor Car Company, Palmer & Singer Mfg. Company, Peerless Motor Car Company, Winton Motor Carriage Company, Hudson Motor Car Company, Bartholomew Company, Nordyke & Marmon Company, Dorris Motor Car Company, Walter Automobile Company, York Motor Car Company, Gearless Motor Car Company, Brush Runabout Company, Moon Motor Car Company, Reo Motor Car Company and Packard Motor Car Company.

SEATTLE PATHFINDER REACHES CHICAGO.

CHICAGO, March 30.—Striking good roads for almost the first time since leaving Albany, N. Y., the around-the-world Thomas car, which is laying out the route of the transcontinental contest to the Seattle Exposition, reached the Windy City this evening, having run from Ligonier, Ind., 114 miles, to-day. In the run from Cleveland, checking stations were established at the Hotel Secor in Toledo, and The Oliver in South Bend. Great enthusiasm was shown all along the route, crowds and cars meeting the tourists everywhere. They intend to push out toward St. Louis to-morrow.

DISCUSSING THE USE OF CHAINS.

ALBANY, N. Y., April 1.—A hearing is taking place to-day at the City Hall, under the auspices of the State Highway Commission, primarily for the purpose of discussing the question as to whether the use of chains on tires of automobiles should be regulated or prohibited, and with reference also to other anti-skid devices. Automobilists are well represented.

LACROIX'S RENAULT GIVEN CLEAN SCORE.

NEW YORK, March 29.—A fifteenth perfect score car has been added to the finishers of the mid-winter run from this city to Boston, March 11, for the Contest Board of the A. A. A. at a meeting this evening, gave Paul LaCroix, who drove his Renault, a clean score. The decision of Referee L. M. Bradley was upheld, in penalizing Mr. LaCroix 16 points for lateness at Hartford, inasmuch as the rules provided for that contingency. But it was shown that the Renault was held up by police on a charge of which he was cleared, and inasmuch as he was not at fault, the board voted to restore the lost points. Mr. Bradley, as referee, did not have the authority to do this.

DECIDES MOTORCYCLES ARE VEHICLES.

LANSING, MICH., March 30.—The State supreme court to-day decided that motorcycles are vehicles, within the meaning of the law relative to automobiles and motor vehicles, and upheld a conviction of H. G. Smith, of Detroit, for violating that law with a motorcycle. Smith had appealed his case.

THE AUTOMOBILE

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THE LICENSING OF ALL OPERATORS.

Anyone, owner or hired chauffeur, entrusted with the driving of a motor-driven vehicle should be required to take out an operator's license, such license to be revocable for criminal or grossly inconsiderate use of the highways, is the opinion that comes from the annual meeting of the New York State Automobile Association, a body containing some 4,600 members distributed among forty-five clubs located in various parts of the State. This expression is qualified by the demand for concurrent action in substituting "reasonable and proper speed" for the present unsatisfactory miles-per-hour limitations. In the same resolution, and interrelated, is the proposition to accept an annual registration fee if the money is expended upon improved roads and motor vehicles are not taxed as personal property.

Upon the question of licensing all operators there is now a striking unanimity that has gained ground rapidly in the past twelvemonth, owing probably to the great increase in the number of automobiles on the roads. The inconsiderate must be punished and the incompetent must not be permitted to drive.

It is urged with much degree of logic that the drivers of all vehicles—motor or horse-drawn—should be licensed, especially in the large cities, where traffic is heavy and varied, and the same argument is put forth in connection with an annual registration fee. Decided by legal interpretation alone, it would appear that there could be no doubt that the ruling of the courts would say in both instances that it was unfair discrimination against one class of road users to exact the fee from automobilists alone.

However, this might not prevent legislatures in which the farmer has a big voice from imposing retaliatory measures for having his horse-drawn vehicles placed upon the same basis as automobiles in the matter of registration and licensing of drivers. While both vehicles use and wear out the roads, the new vehicle has to meet with antagonistic progress, as has always been the case with any innovation. But the newcomer is demonstrating its superiority for all purposes, which means that its supremacy is nearing complete achievement at a pace astounding even to those who have believed in it from the outset.

There is timely need of suppressing the reckless driver, and it is a task for the automobile associations themselves to come forward and aid in clearing the highways of these few, who bring such great discredit upon the many and also prompt legislation which interferes with the intelligent use of the pleasurable necessity of the age. Only by taking them from their places at the steering wheel, occasionally with jail sentences, and in outrageous instances inflicting a permanent revocation of license, can the law-abiding autoist secure for himself the road rights of an American citizen.

* * *

STARTING DEVICES REVEAL PROGRESS.

A casual glance over the field of self-starting devices shows that progress has been made in the past year. This advance has been made in the face of much popular opposition. At first sight, it would seem that owners and drivers would be the best friends of these contrivances, but history proves that the reverse is true. In fact, it is no stretch of imagination to say that the people most interested have been the worst enemies.

This opposition takes two forms, passive indifference and active hostility, of which the former is by far the more dangerous. If the automobiling public wants starting devices, all that is necessary is to indicate that want in clear unmistakable language. The history of the automobile business shows that whatever has been demanded has been forthcoming.

An article in this issue calls attention to the mechanical features of a number of self-starters, but the list of makers who are now fitting them or will do so upon demand is not included therein. If this were so, readers would be astonished at their prominence and large numbers. On the other side of the ocean, Renault, Saurer, Mors, Hallford, Brasier, Safir, and others are all prominent; in our own country, Winton and other Western cars have equally good reputations, yet all these have put out self-starting arrangements. In placing their stamp of approval upon these, the makers have taken the chance that if the devices failed their own business would be seriously affected.

The gradual tendency of the times, the signs of the public awakening, may be seen by following the advertising of the firms mentioned, and noting therein what is featured. This featuring of a device whose necessity should be self-evident is the mark of the campaign of instruction now being carried on.

BELIEVES ALL OPERATORS SHOULD BE LICENSED

ROCHESTER, N. Y., March 29.—The New York State Automobile Association at its annual meeting to-day placed itself squarely upon record as being in favor of requiring the issuing of licenses to the operators of all motor-driven vehicles, with penalties for revocation, and the imposing of an annual registration fee, providing automobiles are not taxed as personal property and "miles-per-hour" is eliminated and "reasonable and proper speed" substituted.

While the majority opinion of those present was in favor of having the amount of the registration fee decided by the diameter of the vehicle's largest tire, there were expressions in favor of both horsepower and weight classifications. Concerning the wisdom of licensing all operators, however, there was unanimity that the time had come for such a requirement, concurrent, however, with the disappearance of the miles-per-hour conditions which make trapping and unfair arrests a most tempting proposition for many rural communities.

After a three years' occupancy of the presidency of the State Association, Oliver A. Quayle declined a re-election and was succeeded by Herbert A. Meldrum, of the Automobile Club of Buffalo and one of its former presidents. The other selections were: First vice-president, Frank G. Webb, Long Island Automobile Club; second vice-president, M. L. Ryder, Albany Automobile Club; third vice-president, S. C. Tallman, Automobile Club of Auburn; treasurer, H. W. Smith, Syracuse Automobile Club; secretary, Bert Van Tuyle, Automobile Club of Rochester.

C. D. Hanks, who has been secretary during Mr. Quayle's administration of affairs, also declined re-election.

Morning and afternoon sessions were necessary to dispose of the routine and special matters. The most important action is expressed in the resolution offered by President J. M. Satterfield, of the Automobile Club of Buffalo, which reads as follows:

RESOLVED, That the New York State Automobile Association places itself on record as being in favor of the issuing of licenses to the drivers of all motor vehicles, with the instituting of penalties for suspension or revocation of such licenses, and, furthermore, agrees to an annual registration fee for motor vehicles, based upon the diameter of the largest tire used on the vehicle, the fee not to exceed $10, provided that such money be expended in the maintenance of improved highways and such motor vehicles are not taxed as personal property and the miles-per-hour restriction is eliminated and reasonable and proper speed substituted.

Ex-President Quayle will continue as chairman of the State legislative committee, his Albany residence making him a particularly valuable man in the position.

In the evening the visiting directors were guests at the annual banquet of the Automobile Club of Rochester, to the presidency of which H. G. Strong was re-elected at the annual meeting in the afternoon. The banquet was held at the Genesee Valley Club, and was attended by fully one-half of the nearly 600 members of the automobile club. President Strong, after telling of the progress of the club in the past and prophesying as to its future, turned the toastmaster's roll over to "Starter" John H. Stedman, retaining for himself the rôle of "Pacemaker."

There were songs in plenty, and the invitation that everybody should sing was vociferously followed. Well-known local politicians brazingly gloried in their presence, and one of them, Police Justice Chadsey, was elected to honorary membership.

Those who talked included President-elect Meldrum, and ex-President Quayle, of the State Association; George H. Diehl, chairman of the A. A. A. Good Roads Board; President J. M. Satterfield, of the Automobile Club of Buffalo; A. G. Batchelder, editor of THE AUTOMOBILE; F. H. Elliott, secretary of the A. A. A.; and D. H. Lewis, secretary of the Automobile Club of Buffalo. Of course Judge Chadsey had something to say.

The State association has 45 clubs and about 4,500 members.

PRESENT CONNECTICUT LAW "SAFE."

HARTFORD, CONN., March 29.—Opinions as to the status of the present automobile law in the State of Connecticut and the general situation in the State in reference to legal matters held the attention of the members of the Automobile Club of Hartford at their dinner on last Friday evening. Arthur L. Shipman, an automobilist and prominent lawyer, was the first to voice the sentiment that the present law is "safe," meaning that there is not a strong likelihood of its being changed, and his remarks were concurred in by Harrison B. Freeman, Jr., another autoist and member of the bar. Mr. Freeman, who was for some time the prosecuting attorney of the local police court, was especially desirous that the club members should obey the present statutes. The club will do all in its power to maintain the present law.

NEW YORK STATE PROTECTIVE ASSOCIATION.

ALBANY, N. Y., March 30.—The National Highways Protective Association was incorporated in this city to-day, its purpose being to prevent the improper use of public highways by vehicle owners, to secure better roads, and more uniform laws for their use. The incorporators were: Lawson Purdy, Gilford Hurry, G. W. Burleigh, J. H. Coit, E. S. Cornell, M. J. Einstein, W. H. Llewellyn, A. D. Middleton, and J. F. Potter, all of New York.

CAPITAL CLUB GETS SHERMAN; AFTER TAFT.

WASHINGTON, D. C., March 29.—Vice-president James S. Sherman has just been elected a member of the Automobile Club of Washington, which is an A. A. A. club. The members of the club, in view of President Taft's readiness to use motor vehicles, expect within a short time to receive his consent to be enrolled as a member of the club.

IN HONOR OF PRESIDENT L. R. SPEARE.

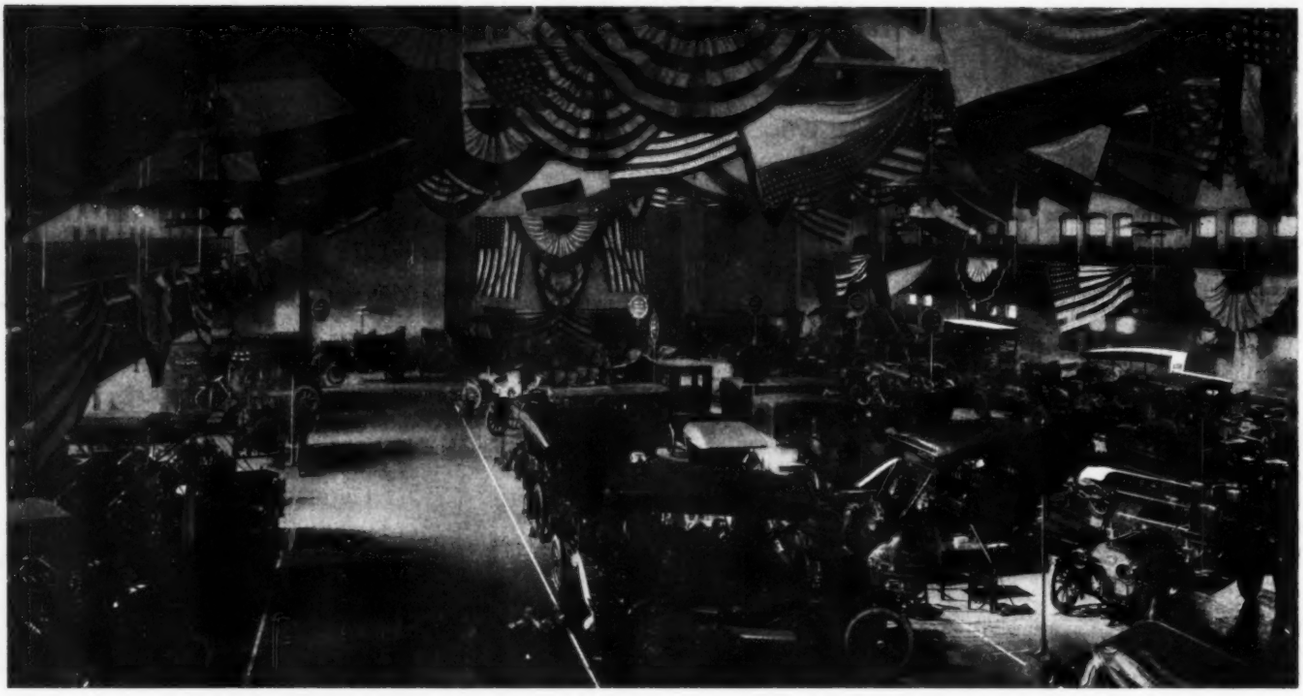
BOSTON, March 29.—In honor of the election of Lewis R. Speare to the presidency of the A. A. A., the Bay State Automobile Association will give a banquet to him, April 6, at the Hotel Carlton. Prominent automobilists from different parts of the country have been invited to attend.

At a meeting of the directors of the Bay State Automobile Association, held March 25, Mr. Speare asked that he be relieved of the presidency, in view of his increased A. A. A. duties. This was accepted with regret, and Frederic Tudor was elected.

Mr. Tudor is an enthusiastic automobilist, owning several cars, and was one of the pioneers in the sport in this part of the country. He holds the first operator's license ever issued by the Massachusetts Highway Commission, and since 1903, when the first automobile law was passed, has cars have had the distinction of bearing registration No. 1. He was formerly secretary of the Massachusetts Automobile Club, is president of the Automobile Owners' Association, and is an officer of one of the local taximeter cab companies.

NEW LAW IN JERSEY PASSES HOUSE.

TRENTON, N. J., March 30.—Automobilists felt justly happy to-day when the Bradley Senate bill passed the House, although rural assemblymen vainly sought to amend it. This bill allows automobiles a speed of 25 miles per hour, provides that violations of the law must continue for one hour to warrant arrest, and cuts the fees of justices of the peace in two. Now that this measure has been safely started, it is felt certain that the Frelinghuysen measure, which permits the State to recognize the licenses of other States, will go through the Legislature. The Colgate bill has been withdrawn.



SYRACUSE SHOW SUPERLATIVELY SUCCESSFUL

SYRACUSE, N. Y., March 27.—Starting under most unfavorable weather conditions, snow, rain and sleet, but which did not seem to have an appreciable effect upon the attendance, the first automobile show ever held in this city was opened last Wednesday evening by Mayor Alan C. Fobes. For three full days thereafter the State Armory was crowded, and a strong note was sounded for a still greater exhibit next season.

At the opening every exhibit, both in the main hall and in the basement, where the accessories were shown, was in its place. The exhibits contained many novelties. One was a little Brush runabout, with "Cleo," the wax man, at the wheel, who defied the crowd to tell at first glance whether he were alive or not. Immediately after the opening ceremonies Mayor Fobes inspected the building, accompanied by Manager Lewis, President of the Trade Association C. Arthur Benjamin, Chairman M. W. Kerr, of the show committee; Vice-President H. D. Van Brunt and H. H. Franklin.

Thursday and Friday it became evident that all Northern and Central New York was interested in the Armory exhibition. Every train brought visitors from Watertown, Utica, Rome, Oswego, Auburn, Binghamton, Elmira, Rochester, Buffalo, Albany, Ithaca and scores of nearby villages and towns. With a total of 4,000 attending the automobile show on Saturday, the closing day of the exhibition, the show came to an end. Already plans are formulated for a bigger and better one next year. The show "caught on" with the public, and its success surprised and delighted the men responsible for it. The total attendance for the four days was upward of 12,000.

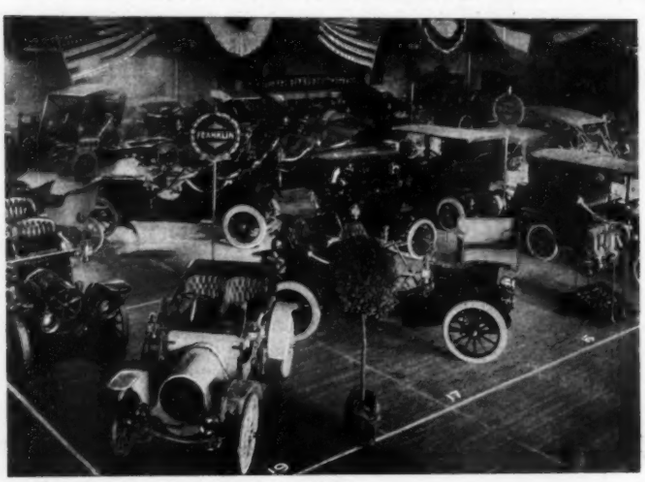


Exhibit of Air-Cooled Franklins at Syracuse Show.

According to figures given by the dealers there have been eighty cars disposed of, the prices averaging $2,000 each, making a total of $160,000 spent for the machines. Over $5,000 worth of accessories and supplies have been purchased from the basement, where the purveyors have been writing orders for tires, engines, speedometers, lamps, oil, etc. Every dealer had his sales department reinforced by all the sub-agents throughout Central New York. Sales have included everything from the $500 runabout to the $5,000 limousine. There was an especially big business done in motor trucks. Those who exhibited were:

AUTOMOBILES.

Amos-Pierce Automobile Company: Chalmers-Detroit, Stevens-Duryea, Lozier.
Oldsmobile Automobile Company: Oldsmobile.
Buick Motor Company: Buick.
Syracuse Autocab Company: Thomas Selden.
H. H. Franklin Mfg. Company: Franklin.
Leon Conde, Inc.: Brush.
C. Arthur Benjamin: Packard, Elmore, E-M-F.
Maxwell-Briscoe-Syracuse Company: Maxwell.
Mora Sales Company: Mora, Regal.
Genesee Motor Car Company: Peerless, Cadillac, Pope-Hartford.
F. L. Wightman: Winton.
Syracuse Motor Car Company: Ford, Overland, Pullman.
W. E. Hookway: White.
Chase Motor Truck Company: Chase.
C. E. Wethey: Reo.

ACCESSORIES.

Atlas Sales Company.
Syracuse Supply Company.
E. B. Van Wagner Mfg. Co.
C. A. Benjamin.
Buick Motor Company.
J. A. Seitz.
W. F. Polson.
Central City Oil Company.
C. E. Mills Oil Company.
F. L. Reed.
Amos-Pierce Company.
O. M. Edwards Company.
Clinton Vulcanizing Company.
Syracuse & Elbridge Glove Co.
Maryland Casualty Company.
Wonder Mfg. Company.

PITTSBURG'S THIRD SHOW A RECORD BREAKER

PITTSBURG, PA., March 29.—Smoky City automobilists, and thousands of people who are not automobile owners, are being treated this week to one of the most successful automobile shows of the season, proven to be such not only by the enthusiasm shown when the doors of Duquesne Garden opened on last Saturday evening and by that seen to-day, but by the exhibitors and exhibited themselves. This is the third annual show, held under the auspices of the Pittsburg Automobile Dealers' Association, better staged than ever, with more extensive and harmonious decorations, increased number of exhibitors, more evenly divided spaces, and consequently a far more pleased attendance.

Indeed, not one of the 8,500 persons who crowded into the big hall on the initial evening expressed anything but delight at the scene, and those automobilists who have gone from city to city in their annual tour around the show circuit have voiced the same sentiments with regard to this one. The brilliant lighting, and the white, green and gold colors in the decorative scheme please everyone, and the 100 or more exhibitors, the ones who are so often hard to satisfy, are enthusiastic in their praise of the setting and general management. Chairman W. N. Murray and his associates, Robert P. McCurdy, C. F. McLaughlin and G. P. Moore were the recipients of many congratulations, and they seemed thoroughly well pleased and repaid for the long period of preparatory work.

It is felt that this show will be the winner for several reasons: far more interest has been shown during its preparation, more exhibitors than on previous occasions have taken space, more space was sold than at any other Pittsburg show, more high-class cars and complete lines of accessories are represented, the arrangement of the hall has been improved, and, perhaps more than these, the show committee has worked harder, been better organized, and has accomplished more than has any other body which has had these festivities in charge. Moreover, there was an unbroken line of exhibits seen when the visitors were admitted, and there are no late comers to disturb the present splendid arrangement. On either side of the long promenade space on the main floor of the Garden are ranged the automobiles. Above and around the tiers of boxes are the accessory exhibits. The stage and the foreground are well filled with exhibits of cars, and up to the very hour of opening applications were made by agencies who desired space for their cars.

The walls of the big Garden are beautifully decorated with great mural paintings of natural scenery, with the automobile always in the foreground. Immense folds of silkaline, set electric figures, bas-relief work, splendid silver trophies won at other shows or other races, and a profusion of costly potted plants and palms make the Garden a very wilderness of beauty. A band is on hand to furnish music, but the crowds have shown a great partiality for the big 36-note Gabriel horn, which was such a welcome addition to the New York, Kansas City, Cleveland and other shows, and the big horn would have been kept busy if it had responded to all the encores. Every effort has been made to have the show a source of genuine profit to the exhibitors.

The display of cars is magnificent, there being all sizes, styles, colors and prices, so that everyone has a chance, and the polished chassis have been the centers of interest here, as they have been elsewhere, dividing the crowds between those who are mechanically inclined and those who look only at the finishes. It is hard to imagine the business depression of the recent financial stringency in this city, and, although it has taken two shows to warm up the buying public of one of the busiest cities in this country, it is apparent that the awakening has been a strong and pleasant one. All over the show there are reports of growing trade, and it is expected that a number of retail sales will be made, in addition to the placing of a few sub-agencies. The suburbs of the city offer excellent roads, and autos are increasing.

Duquesne Garden, Scene of Pittsburg's Third Annual Show, Contains a Representative Collection of the Industry's Best Productions.

Another respect in which the show is noteworthy is in the matter of accessory exhibits, for, although unsanctioned, every available corner where a display of accessories could be planted is taken, and around all of the booths are seen interested crowds, discussing with the dealers, for Pittsburgers have found that economy in up-keep is due in a great measure to the kind and grade of accessories purchased. Special displays of oils, tires, bodies and windshields are on hand.

A number of automobile celebrities have arrived to attend the week of celebration, among them being: E. L. Thomas, E. R. Thomas Motor Company; Walter C. White and R. H. Johnston, White Company; Harry Fosdick, Hol-Tan Company, Lancia importers; C. J. Jamison, Dayton Motor Car Company; W. C. Churchill, Winton Motor Carriage Company; Frank Pierce, Gaeth Automobile Company. Mayor Reyburn, of Philadelphia, sent his greetings across the mountains to Mayor Guthrie, of Pittsburg, in a Maxwell, Jr., car, which is known for its 2,000 and more miles non-stop tendencies, and arrived at Duquesne Garden Saturday morning. Agents, salesmen and prospective buyers of Western Pennsylvania, Eastern Ohio and West Virginia are arriving in good numbers to take in the show, and by midweek it is expected that the nightly attendance will be much larger.

Pittsburg has some products of its own in the Belden, Pittsburg-Six and automobile bodies. The Belden Motor Car Company has so far manufactured its car only upon a small scale, but it is now preparing to erect a plant which will have an immense output. The Fort Pitt Motor Manufacturing Company shows its "Pittsburg-Six," manufactured at New Kensington, a short distance up the Allegheny River. The concerns exhibiting bodies are the L. Glesenkamp & Sons Company and the E. J. Thompson Company. Accessory makers of this city included are: The Union Automobile Tire Repair Company, Manchester Automobile and Machine Company and O. J. Brackney.

The complete list of exhibitors of both automobiles and accessories is given herewith:

AUTOMOBILES.

Arlington Motor Car Co.: Pittsburg, Jackson.
Anderson Automobile Company: Wilkinsburg, Atlas.
Banker Bros. Co.: Stevens-Duryea, Chalmers-Detroit, Pierce-Arrow.
Bellefiel Motor Car Co., DeLuxe, Woods Electric, Couple Gear, Oakland.
Belden Motor Car Co.: Belden.
Buick Motor Car Co.: Buick.
Benson, B. F.: Studebaker.
Collins, D. P.: Lozier.
Eastern Automobile Co.: Atlas.
East End Automobile Co.: Waverley Electric, Pope Hartford.
Fort Pitt Automobile Co.: Locomobile.
Fort Pitt Motor Manufacturing Co.: Pittsburg-Six.
Hamilton Automobile Co.: Kissel Kar, Middleby.
Hiland Automobile Co.: Peerless, E-M-F.
Imperial Motor Car Co.: Cadillac.
Speedwell Automobile Co.: Speedwell Schacht.
Keystone Automobile Co.: Welch, Stoddard-Dayton, Velie, Columbus, Electric.
Maxwell-Briscoe Co.: Maxwell.
Mutual Motor Car Co.: Stearns, R. & L. Electrics.
Overland Motor Co.: Overland.
Olds Motor Works, Pittsburg Branch: Oldsmobile.
Premier Sales Co., Lts.: Premier Reo.
Pittsburg Automobile Co.: Thomas.
Regal Agency, Wagner & Feicht: Regal.
Standard Automobile Co.: Packard-Franklin.
Winton Motor Car Co.: Winton.
Wilkinsburg Automobile Garage: Elmore, Baker Electric.
The White Co.: The White Steamer.
Milhuish & Hemphill: Palmer-Singer and Simplex.
F. W. Fisher: Mora, Jewell, Marmon.
Co-Operative Automobile Co.: Moline.
Acme Motor Car Co.: Acme.
Pittsburg-Mitchell: Mitchell.
Matheson Agency: Matheson.
E. J. Thompson Co.: Automobile Bodies.

ACCESSORIES.

Air Tight Steel Tank Company.
Atlantic Refining Company.
Atlas Rubber Company.
Auto Specialty Co.
Banker Wind Shield Company.
Doubleday-Hill Electric Company.
Dressing, Chas. H.
Eyler & Henry.
Clark, W. L., Company.
Ennis Rubber Company.
East End Cycle Company.
Eagle Lubricating Oil Company.
E. Fleintjes.
Gibney, Jas. L. & Bro.
Independent Tire Repair Works.
Morton, Frank U.
McGraw-Burgess Vertical Fabric.
Kent, A. E.
Pittsburg Post.
Pittsburg Auto Equipment Company.
Pittsburg Rubber Company.
Perfection Wrench Company.
Royal Equipment Company.
Pittsburg Rubber Company.
Reinforced Brazing & Machine Company.
Rider Hotel.
Salman, John A.
Saunders & Bremer.
Standard Automobile Company.
Westinghouse Company.
Woodwell, Jos. Company.

RUSSIAN GOVERNMENT BUYS THE CLEMENT AIRSHIP

PARIS, March 25.—Adolphe Clement's aerial yacht, *Bayard-ment,* has just been sold to the Russian government to be used for army purposes, and is now undergoing trials previous to delivery. The airship, which was only launched a few months ago, and was announced to have been built for Mr. Clement's own personal use, is of the improved Partie type, and was produced by the Astra Company. The Bayard-Clement factory attended to the fitting of the engines, the power plant being a 120-horsepower, four-cylinder racing motor used on one of the 1906 Grand Prix cars. It drives a two-bladed propeller placed forward, and commanded through a reducing gear. Since then a six-cylinder engine of about the same power has been built, but had not been placed in position when the sale was effected. Up to the present the balloon has been used for pleasure trips, Mr. Clement on several occasions traveling from his country residence to his Paris factory by means of his aerial yacht. It has also been a very effective means of publicity, for on several occasions, notably during the holding of the annual Salon, it was flown over the city of Paris at noon, sufficiently low for the flaming characters on its side and rudder to be visible to all the frequenters of the boulevards.

A second French airship for the Russian government is under construction at the Lebaudy establishment at Moisson, near Paris, and is expected to be ready for delivery about the month of May. Orders have been placed with Melvin Vaniman, the American engineer, responsible for the construction of the mechanical portion of the Wellman polar airship, for two portable sheds to house war balloons. These sheds, which are of a special design, can be erected in four hours and taken down in half that time. They are specially designed to be mounted on automobiles in order to travel over country to a new headquarters that may be designated by the pilot of the airship.

Walter Rutt, Germany's well-known cycle racer, has turned aeronaut; a patron has ordered a Wright aeroplane for him, and he will take a course of lessons from the one and only Wilbur. A Wright aeroplane has been bought by the Strassburg firm of E. E. Mathis, and will be exhibited at the Frankfort show.

LANCASTER CLUB ELECTS OFFICERS.

LANCASTER, PA., March 29.—With the record of a successful year behind them, and the prospects bright for the success of the coming year, the members of the Lancaster, Pa., Automobile Club held their annual meeting at Lancaster on a recent evening and elected officers for the coming year. A banquet preceded the meeting. One of the features of the evening was an address by Hon. Frank B. McClain, ex-Speaker of the Pennsylvania Legislature, in which he is still a member. He showed the futility of hoping for the passage by the present Legislature of the bill providing for the State highway from Philadelphia to Pittsburg, on account of the depleted condition of the State treasury, and urged the club to support the efforts being made to raise $50,000,000 by a bond issue for the construction of State highways. New York will soon have the best roads in the United States, he said, and this is the manner in which they are being secured.

There was a spirited contest for the offices, indicating keen interest in the club. The officers elected were: President, H. C. Schock, Mount Joy; vice-president, Dr. J. F. Trexler, Lancaster; secretary, J. D. Rider, Lancaster; treasurer, Dr. W. H. Trout, Lancaster. Directors: Fred F. Groff, Lancaster; Geo. W. Kinzer, New Holland; Dr. Donald McCaskey, Witmer. The report of the secretary showed that during the year the membership increased from 107 to 153, exclusive of the ten elected at the meeting.

Dr. F. Magee, Esq., a member of the State committee on good roads, made an address in which he strongly urged the use of the King drag on dirt roads. Its adoption has met with successful results, and the Lancaster Club decided to conduct several public demonstrations to interest the farmer and show him how cheaply good roads could be had. Assurance was received from several turnpike companies that the roads of which the club complained would be repaired upon the advent of seasonable weather.

PETREL TO BE MADE IN MILWAUKEE.

MILWAUKEE, WIS., March 29.—An announcement of more than ordinary interest was made in Milwaukee early this week, when negotiations were closed by the Petrel Motor Car Company, of Kenosha, Wis., for a long-term lease of the Pfister & Vogel Leather Company's Virginia Street Foundry in Milwaukee, and that on May 1 the Kenosha works will be moved to Milwaukee. The company has been occupying the former Visible Typewriter Company plant at Kenosha, Wis., now owned by the Badger Brass Manufacturing Company. The Petrel friction drive car has been successful from the start. The demand is fully equal to the supply, and is expected to greatly exceed it before long.

HORSE FIRM TAKES AUTO AGENCY.

Realizing the great field for the sale of automobiles by a house which has an established reputation, although in a directly opposite line, the Fiss, Doerr & Carroll Horse Company, of New York City, has secured the sole Eastern distribution for Columbus electrics, and a complete line has been placed on exhibition in the salesrooms of the concern on East Twenty-fourth street. It is not stated how this will affect the interest of the company in horses, but it is probable that the equine will not be altogether superseded, at least not for the present.

LOGAN TRUCK PLANT GETS NEW LEASE OF LIFE.

COLUMBUS, O., March 29.—John H. Blacker and Mortimer Renick last week purchased the plant of the Logan Construction Company at Chillicothe, O., at auction. The purchasers announced that they would continue the manufacture of automobiles in the plant. Commercial machines only will be made.

Port Jervis, N. Y.—Alfred Munnich has begun work upon an extension of 100 feet to his garage on Pike street. It is planned to use the present garage as a store and salesroom.

Strang Inspects Indianapolis Speedway Model.

To show the plan of the Indianapolis Motor Speedway, a concrete model has been laid out. There will be a course within a course, so that either a two-and-a-half-mile track or a five-mile track can be used, with space for a balloon starting ground inside.

CATSKILL-BERKSHIRE TOUR OF NEW YORKERS.

Instead of a two-day tour next June, up to Catskill, N. Y., and return, the members of the New York Automobile Trade Association, and their friends, who so enjoyed the novel run to Montauk Point last Fall, will this Summer be given a treat in a tour through the Catskill Mountains and Berkshire Hills.

The route is a beautiful one, and early in the morning of June 12 the machines will assemble and run to Tarrytown, where a special ferry will carry them across the river to Nyack, and then the route will lead them to Arden, in the Highlands of the Ramapo. This is said to equal in scenery the Scottish Trossacks, and a picnic luncheon will be provided. Through Tuxedo the cars will journey, if permission to enter this sacred precinct can be secured, to Kingston, where the night stop will be made. On the following day, June 13, the course will lead through the Catskills to Albany, thence through the Berkshire country to Great Barrington, an all-night stop.

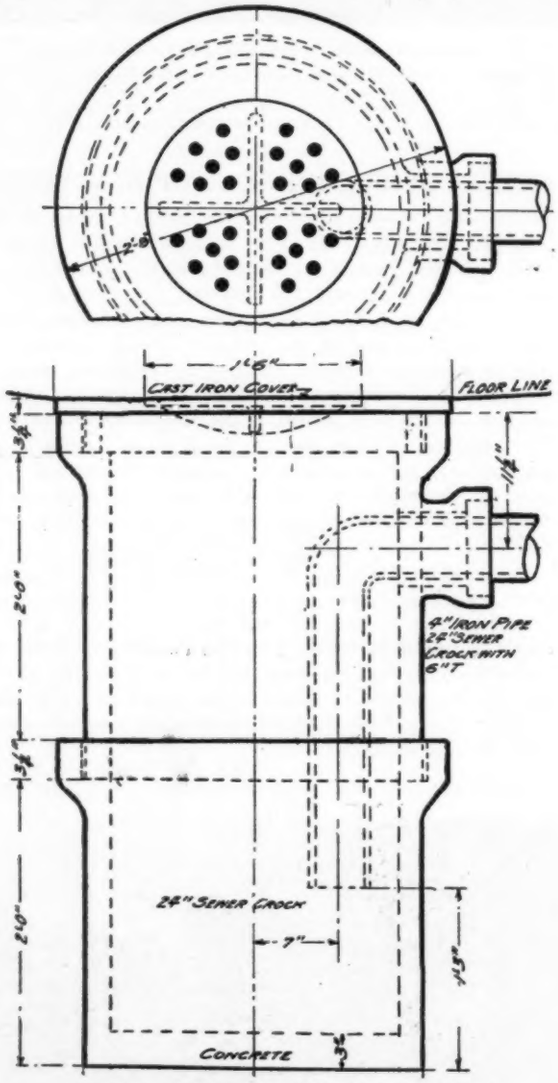
The third part of the run will lead the cars by easy stages through Lakeville and Dover Plains to Paulding for lunch, and in the afternoon through Paterson and White Plains to New York City. The committee in charge is composed of C. P. Skinner, chairman; Harry Fosdick, Richard Newton, Peter Fogarty and Walter R. Lee, manager.

Studebaker Finishing Denver-Chicago Run.

Sent from Denver by the Denver "Post," in the interests of automobilists to have that city upon the Glidden tour route, this car was driven by George Smithson through blizzards, snowdrifts, and long stretches of deep mud, in its hard trip. He was accompanied by W. H. Fairbanks, Jr., who bore the official messages.

PROBLEM OF GARAGE GASOLINE DRAINAGE

THE rapid increase in the use of automobiles using gasoline as fuel requires a solution of a problem which is comparatively new, says *Domestic Engineering*. A careless chauffeur upon running his machine into the garage may fail to shut off the gasoline. This drips on the floor, collects in the drain and may find its way to the sewer. It is a danger to be apprehended, either in the garage, in the floor drain trap or in the sewer, as its exceptionally volatile character permits it to vaporize rapidly at a low temperature, and this vapor coming in contact with a burning match, gas light or an electrical spark may cause an explosion dangerous in character and destructuve in effect.



Sketch of Home Made Safety Drain Pipe.

From the sewer, gasoline may find entrance into house drainage systems, and thus cause damage.

What is the best way to prevent the entrance of gasoline into the sewer and the proper way to care for it in the drainage of the garage? A few samples of what is required in different cities will prove interesting:

W. G. Williamson, inspector of plumbing, Detroit, Mich., recommends the accompanying method of constructing a catch basin in an automobile garage, believing that it will safely care for any accumulation of gasoline and prevent its getting into the sewer. In explaining his plant, Mr. Williamson states that the method he suggests will prove more satisfactory, or at least fully as satisfactory, as more expensive methods of construction. As will be seen by reference to the drawing, the method calls for the use of one section of 24-inch sewer crock set on its spigot end in a bed of three inches of concrete to make a perfectly water-tight base. In the hub end of this two-foot length of sewer crock he places a 24-inch sewer crock with a 6-inch tee, the joint being made of concrete. A 4-inch iron pipe elbow is carried through the 6-inch tee opening of the upper section of the crock, the joint to be made with concrete, and the elbow turning down so that its lower end will come within one foot of the bottom of the catch basin, which ought to provide ample space for sand and settlings so that the basin would not require cleaning too frequently. The seal provided for this elbow is nearly two feet, which should be ample to prevent any gasoline ever getting into the sewer. Whatever gasoline finds its way into this catch basin will be vaporized and the vapor passes through the perforated cast iron cover of the catch basin into the garage, and thus makes the presence of the gasoline known and causes caution on the part of the attendants. The cover of the catch basin as shown consists of a cast iron cover ring with an annular ring which sets into the hub of the upper section of crock pipe and which can be set with concrete, and would probably be best so set, as the ring would remain rigid when wheels passed over it. The removable cast iron cover is perforated with 1-inch holes set in rings 4 inches apart, and this ring is made with ribs on the underside to strengthen it. The entire catch basin is set so that the floor will drain to the perforated cover.

Geo. R. Stolz, inspector of plumbing, Milwaukee, Wis., writes that there is no special way used in his city of taking care of gasoline which might drip from automobiles and find its way into the sewer. He permits the use of an ordinary catch basin with elbow turned down and with its mouth high enough in the catch basin to allow about 2 feet of depth for sand or dirt settlings. Gasoline being of a light specific gravity will gather on top of the contents of the catch basin and be dissipated into the garage through the perforated catch basin cover.

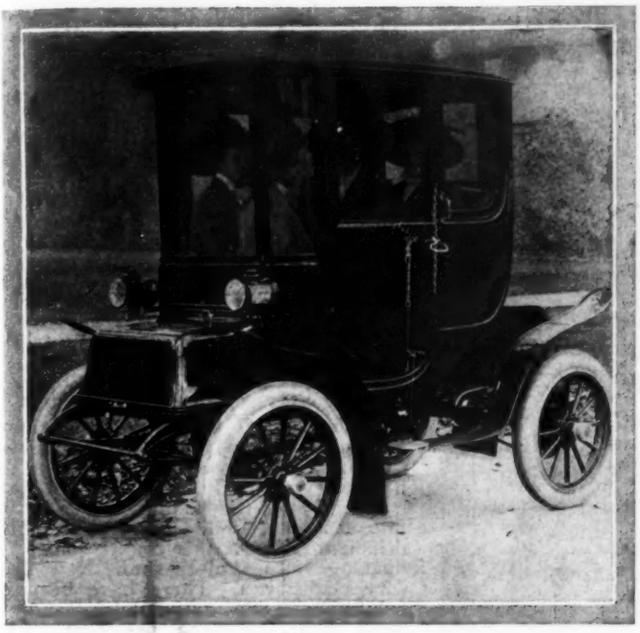
SMOKE ORDINANCE INOPERATIVE ON HILLS.

PHILADELPHIA, March 29.—"On the level" you must not smoke, unless you desire to pay $5 and costs, but you may smoke going uphill without digging into your jeans—such is the dictum promulgated last week by the Park Commission, through Magistrate Harris, who had a score or more of offenders before him at the Ledgely guard house. The rules of the commission make it a finable offense to drive on the Park roads an automobile which "emits offensive quantities of smoke or disagreeable odors," and the gray-coated guards have been busy for the past fortnight keeping tabs on the tag numbers borne by all "smokers." Those who were able to convince the magistrate that they were going uphill at the time were discharged with a warning; the smokers "on the level" were fined the $5 and costs which the statute provides.

It developed during the hearings that the majority of the offenders were demonstrators from the various establishments along "Gasoline Row," who invariably take their "prospects" up and down Sweet Briar and Tam o'Shanter hills a few times to show off their cars' abilities in the hill climbing line.

AUTOISTS WAR ON WATERBREAKS.

WASHINGTON, D. C., March 29.—The Automobile Club of Washington has started a vigorous campaign against waterbreaks, which abound in all the roads leading out of the capital city. A committee, consisting of Robert B. Caverly, A. Ward Evans and Fulton R. Gordon has been appointed to deal with this subject and are receiving enthusiastic support.



A Bevy of Pretty Girls in an Anderson Electric.

CHICAGO TRADESMEN ELECT TOM HAY.

CHICAGO, March 27.—The annual election of the Chicago Automobile Trade Association resulted in a victory for the member's party, which put into office all its candidates with the exception of one, the successful slate being made up as follows: President, Thomas J. Hay; vice-president, Joseph F. Gunther; secretary, F. E. Sparks; treasurer, Henry Paulman; directors, N. H. Van Sicklen, A. J. Banta and H. P. Branstetter.

DUCASSE GETS DARRACQ AMERICAN AGENCY.

With the whole United States as territory, Henry Ducasse & Company, located at 140 West Forty-second street, New York City, has secured the American agency for Darracq cars, controlling not only the importation and sale of touring cars and chassis, but also of taxicabs. By the terms of the agreement with A. Darracq & Company, of Suresnes, France, the new agents will make large importations, and sub-agents started in all of the large cities.

CHALMERS NAMES QUALITIES FOR SALESMEN.

DETROIT, March 29.—Hugh Chalmers, president of the Chalmers-Detroit Motor Company, recently addressed the Detroit Adcraft Club at its noonday luncheon, on "The Relationship of Salesmanship to Advertising." Asserting that there are ten essential qualities in successful salesmanship—health, honesty, ability, initiative, tact, sincerity, industry, knowledge of the business, open-mindedness, and enthusiasm—he declared that nine out of ten of these qualities had to do with the man himself. "Salesmanship is nine-tenths man and one-tenth goods and territory," said Mr. Chalmers.

NEW JERSEY TRADESMEN RE-ELECT OFFICERS.

NEWARK, N. J., March 29.—At the annual meeting and banquet of the New Jersey Automobile Trade Association, last Thursday evening, the officers who have guided the association so well during the year just closed were re-elected. The gathering was the largest and most successful yet held, and was productive of much good toward strengthening the organization. The officers re-elected were: George Paddock, president; J. W. Mason, vice-president; W. H. Ellis, secretary; R. A. Greene, treasurer. F. L. C. Martin and L. B. Zusi were elected members of the executive committee for three years.

PROPOSED TOLEDO DEAL OFF: ANOTHER PLAN.

TOLEDO, O., March 27.—After the Apperson deal for the Pope Motor Car Company has progressed so far as to name this year's cars Apperson-Toledo, announcement has just been made by Henry L. Thompson, of this city, that the deal is off and that another was being considered. When Mr. Apperson took an option on the local plant, one of the conditions was that $250,000 be put into the plant by Toledoans. The option taken at that time expired a week ago, but was extended till March 27, and now Mr. Thompson, who has been in charge of raising the $250,000, says that the deal is off for the present and that another proposition whereby the plant may be retained in this city is being considered. Just why the deal fell through is not made public.

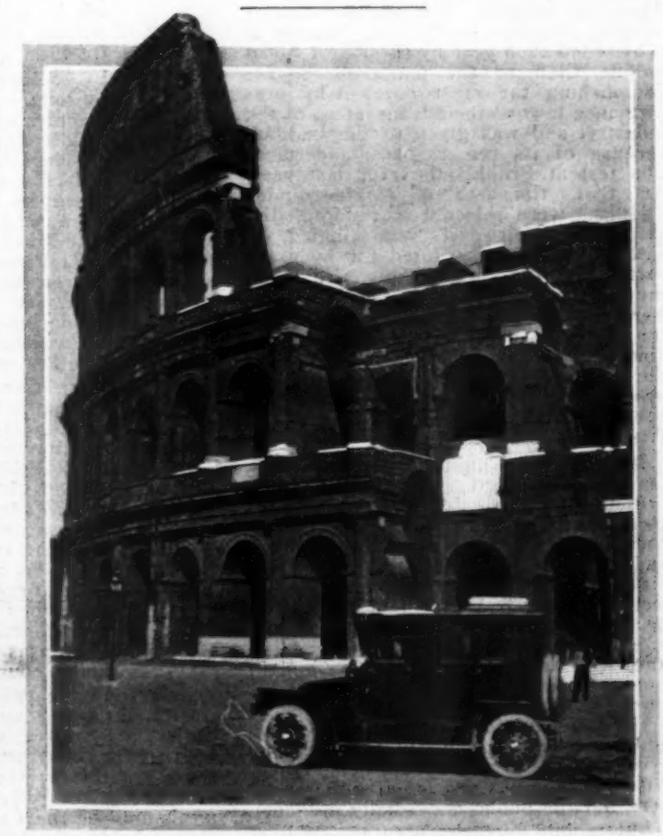
Receivers A. L. Pope and George A. Yule have been discharged as receivers for the local plant, although they are yet under a nominal bond of $20,000.

COMMERCIAL VEHICLE FACTORY AT ANN ARBOR.

ANN ARBOR, MICH., March 29.—Under the name of the Triple Motor Truck Company, a new concern, capitalized at $340,000, is about to close with local business men for the establishment here of a large plant to manufacture commercial motor vehicles. F. O. Paige of Detroit, Andrew Bachle and H. A. Wilcox of Owosso, formerly connected with the Reliance Motor Company of Flint, are named as the principals in the negotiations.

ANOTHER AUTO BUGGY FACTORY PLANNED.

TOLEDO, O., March 27.—The Auto-Bug Company, of Norwalk, O., has just been incorporated with a capital stock of $100,000, and will manufacture high-wheeled auto buggies and other motor vehicles. Incorporators are: I. W. Goodell A. E. Skadden, C. F. Jackson, J. R. McKnight and W. G. Gilger. It is the intention of the concern to occupy an unoccupied factory building for the present, but an entirely new structure will be built within a year.



Renault in Front of the Coliseum at Rome.

News in General

A London Bus Feeling Its Way Through Flooded Streets.

Bursting water mains in the city of London recently made street traffic impossible for all but motor vehicles. The 'buses pushed their way through thoroughfares wheel-deep with water, that was filled with wooden paving blocks and other obstructions, and carried passengers to and from their homes in safety.

Cadillac Company Gives a Banquet.—To celebrate the arrival in this country of the famous Dewar trophy the Cadillac Motor Car Company a few evenings ago tendered a banquet to about eighty of its employees, composed mainly of heads of the mechanical departments, at the Hotel Ponchartrain, Detroit. The celebrated cup occupied the center of the table, the first time that it has been won by an American concern. It is one of the most coveted trophies in Europe, because it is awarded each year by the Royal Automobile Club to the manufacturer accomplishing the most noteworthy performance toward the advancement of the industry, and was given to the Cadillac because of its remarkable standardization test at Brooklands track last year. At that time three single-cylinder Cadillacs were selected at random, disassembled, their parts intermingled, 89 withdrawn and substituted for by extra parts from the stock supply, and when they were reassembled the machines were taken right out on the track and run 500 miles without any trouble. The dinner was given by the management of the concern to thank and commend the heads of the departments who made this possible. Among the guests was W. R. Warner, of Cleveland.

Meeting of Engineering Societies.—On Tuesday, April 13, will be held the presentation of the John Fritz medal for 1909 by the four national engineering societies, A.S.M.E., A.S.C.E., A.I.E.E. and A.I.M.E. The board of award, especially chosen for the purpose, has selected Charles T. Porter, honorary member A.S.M.E., as the recipient of the honor, for his work in advancing the knowledge of steam engineering and in improvements in steam engine construction. Besides the simple ritual of the presentation of the medal, there will be addresses by representatives of the four groups of the profession most concerned. Attendance is not restricted to the members, but the public is cordially invited.

Automobile Factories Wanted.—Watertown, N. Y., in a little booklet which has been sent out to automobile manufacturers, is calling attention to its facilities as the situation for an automobile factory, with water power, railroad sidings, and established industries which are closely allied with the automobile. These are body building plants, spring makers, builders of gas and gasoline engines, copper and nickel plating plants, and many others. Loren R. Johnston is a moving spirit in seeking for new industries, and invites any one interested to communicate with him.

Hartford Rubber Works Officers Change Positions.—At a meeting of the board of directors of the Hartford Rubber Works Company, held in Hartford, J. P. Krogh, chief of the credit department, was elected treasurer to fill the vacancy caused by the resignation of Henry F. Plow, who has accepted a position with the Mitchell Motor Car Company. D. W. Pinney was elected assistant treasurer, and Franklin Kesser, sales manager, and former manager of the Philadelphia branch of the company, was elected assistant secretary. The office of secretary was left vacant.

Farmers Are Converts to the Automobile.—So great is the interest taken in the automobile in Michigan, particularly by the agriculturalists, that the State Agricultural College proposes to establish a course and give instructions in its general uses and adaptability. This will be a short winter course and the students will be taught the structure and operation of engines as well as dismantling and assembling of cars. When they have mastered this, they will be taught to drive. It is said that the State schools of Iowa and Kansas will follow suit and establish similar courses.

Rambler Spare Wheel Contests.—Keen rivalry has arisen among owners of and dealers in Rambler cars to lower records of the time needed to substitute the spare wheels for the regular ones. At present the record is held by one of the mechanics of the Cleveland agent, who changed one wheel in fifty-nine seconds, first jacking up the car and letting it down after completing the operation. All four wheels were changed in four minutes and a half. W. K. Cowan, of Los Angeles, claims 1:45 as his record time, while a novice in that city made the change in 2:50.

Selden Car as Gift to a Prelate.—As a mark of high esteem and regard, on the occasion of the 25th anniversary of his ordination, Rt. Rev. Thomas F. Hickey, D.D., of Rochester, N. Y., was presented with a Selden touring car by his parishioners. His duties call him over a wide area of the country surrounding the city, and for this reason the practicability of such a gift was appreciated by those who gave it. At the presentation a copy of the New York State automobile law was also given to the prelate, much to the general amusement.

Statistics of Goodyear Detachable Rims.—The Goodyear Tire & Rubber Company, to show the growth of the popularity of quick detachable rims, has compiled statistics, taking as a basis the fourteen automobile shows held in the principal cities of this country since the opening of the Palace show, New York City, January 1. There have been on exhibition 1,885 automobiles, and of these 1,371, or 72.73 per cent., were equipped with quick detachable rims. The Goodyear quick detachable rim led in eleven out of the fourteen shows.

Making a Bigger Jewel.—The Jewel Motor Car Company, located at Massillon, O., has found the present factory space so much too small for the amount of work being done that an addition has become a necessity. As now planned, this will be 55 by 80 feet and two stories high with a saw tooth roof. This increase in the plant has not only been planned, but work has actually commenced on it. When this work is completed it is expected that 250 men will be employed.

Fisk Tires on Fire Apparatus.—Success in equipping automobile fire apparatus with Fisk tires in the past has influenced the Fisk Company to give especial attention to this branch of the trade, and recently the Fisk tires have been adopted as equipment by the Robinson Fire Apparatus Manufacturing Company, of St. Louis, and the La France Engine Company, of Elmira, N. Y. The pneumatic bolted-on type has been popular, as well as solid tires.

New York Carnival Prizes. — The plans for the automobile carnival week of the New York Automobile Trade Association are fast being put into shape, and it has been decided that the $2,000 to be given as prizes for the cars in the parade shall be divided into $500, $250 and $150 for decorated pleasure vehicles; $500, $200 and $100 for the decorated floats or displays, and $200 and $100 for grotesquely decorated cars.

Holsman Factory Running at Night.—According to the Holsman Automobile Company, this year will be a record breaker in the amount of business done in high-wheeled automobiles, for already the pressure of demand has been felt. The Holsman factory in Chicago is now working at night as well as day and is still behind orders. The demand for the 1909 cars with direct drive from the motor to the wheels is very great.

New Factory for Rothschild & Company.—An old four-story building at the corner of Eleventh avenue and Fifty-seventh street, New York City, has been purchased by Rothschild & Company, and will be altered from a flax mill into a thoroughly renovated automobile fac-

tory. The building is a large one, 200 by 107.8 feet, with a frontage of 100 feet upon Fifty-sixth street.

New Navy Secretary Buys a Waverly.—The new administration at Washington is showing interest in the automobile industry. Following the conversion of the White House stables into a garage and the purchase of touring cars for the President, the new Secretary of the Navy, George Von L. Meyer, has purchased a Waverly Victoria phaeton for his personal use.

Arseno Electric Company Opens Boston Store.—The Arseno Electric Company, wholesale and retail dealers in electric and automobile equipment, has established a store at 819a Boylston street, where it will make its headquarters. C. B. Arseno, the manager, has had 25 years' experience in the electrical field and 18 in the bicycle and automobile work.

McCue Moves into New Factory.—The McCue Company, builders of the McCue Hartford car, are now moving into their new factory on Pliny street, Hartford, Conn. The building is two stories high, and will give facilities for a much increased output.

Minneapolis Car's Name Changed.—The H. E. Wilcox Motor Car Company of Minneapolis, which has been manufacturing the Wolfe touring cars and trucks for the last four years, has announced that hereafter the name of its product will be called the "Wilcox."

IN AND ABOUT THE AGENCIES.

Fisk Tires: Philadelphia.—Upon the completion of extensive alterations to the new building at 258 North Broad street, the Philadelphia branch of the Fisk Rubber Company, under the management of K. B. Harwood, will move from its present quarters at 1309 Race street.

Dow Tire Company Has Boston Branch.—The Dow Tire Company has opened a branch in Boston at 889 Boylston street, where it will handle all of the New England trade to dealers, as well as the retail trade.

Crawford, Philadelphia.—The Philadelphia agency for the Crawford has been taken over by the Crawford Automobile Company, of Philadelphia, with headquarters at Broad and Ridge avenue, under the management of Henry R. Hoopes.

Knapp-Greenwood Company Opens Salesroom.—The Knapp-Greenwood Company, manufacturer of shock absorbers, with a factory at Farmington, Me., has established a salesroom at 998 Boylston street, Boston.

KisselKar: Philadelphia.—Rogers & DuBois, owners of the Rittenhouse Motor Company, at 214-220 South Twenty-third street, have been awarded the Philadelphia agency for this car.

Lozier: Northern California.—S. G. Rayl, distributor, with headquarters at the Broadway garage, San Francisco.

Lozier: Milwaukee, Wis.—Williard V. B. Campbell, Farwell avenue and Brady street, State agent.

Locomobile: Hartford, Conn.—L. D. Fisk, Hartford Automobile Station, 43 Wells street.

Moon: Milwaukee, Wis.—Riverview Automobile Company, 325 E. North avenue.

Velie: Kansas City.—Evans Automobile Company, 1927-1929 Grand avenue.

TAXICABS AND TRANSIT.

Hartford, Conn.—The Capital City Auto Hack and Livery Company, local agent for the Mitchell, will start a line of taxicabs shortly. This will make three different lines in this city, the Maxwell, which is doing well, and the Elmore, inaugurated about a week ago with satisfactory results, and the Mitchell. The local public seems to be losing the idea that a taxicab costs a fortune. Considerable trade is picked up at the local hotels, and both the Elmore and the Maxwell make headquarters at a garage. When the Maxwell was first started it was put on the public vehicle stand, but was later withdrawn and put in the garage. The Elmore has been kept busy and has not had time to be on the public service stand more than three times.

Long Auto Line in Texas.—Road work has now been completed upon the extension of the automobile stage line from Seminole, Tex., to Carlsbad, N. M., so that now the total length of the line from Midland, Tex., to Carlsbad is 240 miles. Merchants of the latter place have offered a bonus if the schedule is fixed and maintained at ten hours. This is said to be the longest automobile line.

New Line to Yellowstone Park.—Orders for several Mason cars, made in Des Moines, Ia., have been placed by the Wyoming Transit Company, Inc., for use in service between Rock Springs, Wyo., and the Yellowstone Park, to make trips of 100 miles daily on a regular schedule.

Traverse City, Mich.—A rapid transit company has been given a license to operate an automobile 'bus line in this city on a regular schedule and a five-cent fare. During the Summer months the service will be extended to the resorts.

North Birmingham, Ala.—This city has just received its new automobile fire engine. The machine arrived lately and after a satisfactory public demonstration by Chief Bennett was permanently located at the central fire station.

Ilion, N. Y.—A motor 'bus company is arranging to establish a regular automobile service covering Otsego street, West hill, Barringer and Armory hill.

RECENT BUSINESS TROUBLES.

Missouri Valley Auto Co., Kansas City, Mo.—Harvey E. Rooklidge, president of the Missouri Valley Auto Company, 1112-1114 East 15th street, Kansas City, Mo., has made application for a receiver for the company.

RECENT BUSINESS CHANGES.

Stromberg Branches Move.—The New York branch of the Stromberg Motor Devices Company will move about April 1 to the new Automobile Building at Broadway and Sixty-fourth street, where offices will be combined with the installation department. The San Francisco branch has been moved to 307 Golden Gate avenue from its former location at 426-428 Van Ness avenue.

Hess-Bright Manufacturing Company, New York.—The New York office of the Hess-Bright Manufacturing Company has been moved from 90 West street to 1974 Broadway, where a store has been opened to carry complete lines of HB-DWF ball bearings and Hess-Bright magnetos. George T. Gwilliam is the resident manager.

New York Knox Branch Will Move.—The Knox Automobile Company has leased the salesroom at 1966 and 1968 Broadway, New York City, formerly occupied by the S. P. O., and its metropolitan branch, under the management of H. M. Davis, will move into it on May 1.

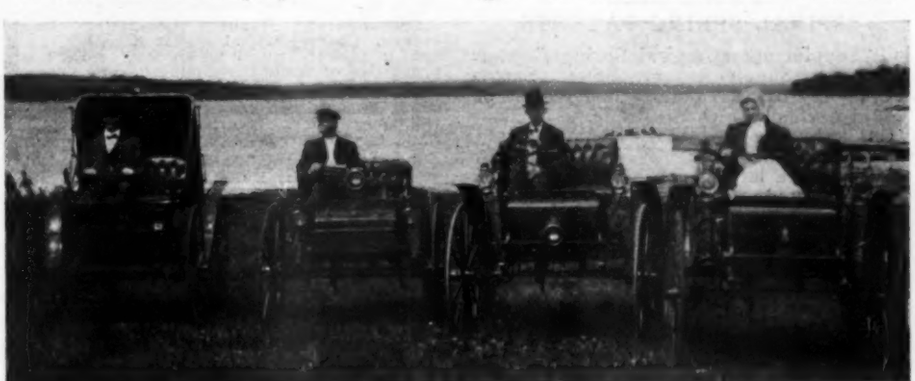
Hayes Mfg. Company to Enlarge.—The Hayes Manufacturing Company of Detroit, manufacturers of automobile sheet metal parts and forgings, has found it necessary to erect an addition to its plant on Maybury avenue.

PERSONAL TRADE MENTION.

Irving J. Morse, until recently the manager of the Philadelphia branch of the Locomobile Company of America, has received a promotion in being assigned to the management of the San Francisco branch of the Locomobile Company, having in charge not only all of the business in the Western and Coast States, but also of the export business to Japan and Hawaii. Philadelphia automobilists gave him an enthusiastic send-off, expressing at luncheons their regret at losing him, but congratulating him upon his enlarged work. Mr. Morse's successor is S. de B. Keim, who has been connected with the Locomobile Company for nine years in various capacities.

P. K. Larter, for many years a prominent feature in New York automobile circles, and well known as a driver of Mercedes and Renault cars, has become identified with the Allen Auto Specialty Company, of 1926 Broadway, N. Y., makers of Allen tire covers, as Eastern traveling representative.

W. A. Woods, formerly general manager and treasurer of the Cleveland



First Holsmans Take Part in Family Reunion.

Four of the first cars made by the Holsman Automobile Company recently took an active part in a family reunion at Spirit Lake, N. D. The cars are owned by the family of A. P. Halstead and traveled distances varying from 20 to 100 miles for the gathering. They are over six years old and still in service.

Motor Car Company, of Cleveland, O., has joined the staff of Manager William B. Hurlburt, of the New York branch of the E. R. Thomas Motor Company.

William W. Taxis, who has been connected for several years with the White Company, has been appointed assistant sales manager in the East to assist George W. Bennett, the Eastern sales manager.

Henry Plow, secretary and treasurer of the Hartford Rubber Works Company, has resigned, to take effect on April 15. He will then become the assistant treasurer of the Mitchell Motor Car Company.

C. S. Bugbee has been appointed district sales manager for the City of Detroit by the Rapid Motor Vehicle Company, with salesrooms located at 467 and 469 Woodward avenue.

Peter Fogarty has re-entered the metropolitan sales business as sales manager for George C. John, who now handles the American Mors, the Marmon and the Interstate.

John H. Rosen has been appointed general manager of the Autolight and Motor Supply Company, Inc., Broad street, above Spring Garden, Philadelphia.

STEWART & CLARK EXPANDING.

Owing to the vast increase in its speedometer business, the Stewart & Clark Manufacturing Company, of Chicago, has found it necessary to constantly expand its manufacturing facilities. The illustration shows the company's plant as it appears to-day, a new addition having just been completed and occupied. This recent addition, although large in extent, must be followed shortly by another still larger. The company reports an unprecedented demand for all the models of the Stewart line, including those recently added and shown at the recent New York and Chicago shows.

Factory of Stewart & Clark Mfg. Co.

SPIRAL SPRING PATENTS.

"Supplementary Spiral Springs," made by the Supplementary Spiral Spring Company of St. Louis, will hereafter be sold exclusively to the trade, as well as retail, by the St. Louis Supplementary Spiral Spring Company, Inc., of New York. The latter concern has just been incorporated, and has established its offices in the Motor Mart Building, 1876 Broadway. It will take the entire production of the St. Louis factory. William Young is the president of the firm.

By an injunction restraining Graham's Automobile Spring and Appliance Company of Boston from imitating in any way the product of the St. Louis Supplementary Spiral Spring Company, Inc., the latter has won a victory in a long suit for infringement of its patents, and gives it the patent rights in the manufacture of its shock absorbing springs.

RECENT INCORPORATIONS.

Herring-Curtis Company, Hammondsport, N. Y.—Capital, $360,000. To manufacture motors, motorcycles, boats, vehicles, balloons and flying machines. Incorporators: A. W. Gilbert, Brooklyn, N. Y.; Chas. Heitman, Forest Park, N. Y.; W. B. Denton, New York City.

Mason-Seaman Transportation Company, New York City.—Capital stock, $500,000; will run a livery and boarding stable, automobile passenger and baggage transfer. Incorporators: Henry Schwed, Wm. H. Corbitt, Arthur Frank and John J. Harris.

Welch-Forrester Company, New York City.—Capital stock, $25,000; will manufacture motors, vehicles, engines and machinery. Incorporators: A. R. Welch, Pontiac, Mich.; Allen P. Hallett and Mark M. Solomon, New York City.

Munsing Motor Car Company, Hoboken, N. J.—Capital stock, $1,000,000; will manufacture automobiles, motors, engines and trucks. Incorporators: W. H. Buresmith, J. B. Franklin and C. H. Bellows, Jr.

Dart Engineering Company, New York.—Capital, $10,000. To manufacture automobiles. auto cars, motorcycles. Incorporators: J. R. Del Rio, New York; G. C. Autenrieth, Westchester; P. S. Tice, Brooklyn.

Cordner Motor Car Company, New York.—Capital, $25,000. To manufacture, lease and sell horseless vehicles. Incorporators: A. B. Cordner, Robt. E. Graham and W. H. Flinn, Broadway and 76th street.

Wonder Manufacturing Company, Syracuse, N. Y.—Capital stock, $40,000; will manufacture motor boats and automobiles. Incorporators: William D. Boyle, George T. Hurd and Bertha C. Cornwell.

Valley Boat and Engine Company, Baldwinsville, N. Y.—Capital stock, $20,000; will manufacture gasoline motors and engines. Incorporators: D. S. Simpson, R. H. Hubbell and J. Tallmadge.

Auto-Car Manufacturing Company, Buffalo, N. Y.—Capital stock, $250,000; will manufacture automobiles, motor vehicles. Incorporators: John B. Pierce, G. W. Atterbury and G. D. Pratt.

Barnes-Curtiss Company, Inc., New York City.—Capital stock, $25,000; will manufacture, rent and deal in automobiles. Incorporators: H. B. Barnes, Jr., A. L. Curtiss, New York City.

Premier Motor Car Company, Chicago.—Capital, $12,000. To manufacture automobiles and accessories, 100 Washington street. Incorporators: Webb Jay, W. E. Stalnaker, Robt. Eveland.

Connecticut Motor Vehicle Company, New York City.—Capital stock, $50,000; will manufacture motors, engines and machinery. Incorporators: C. M. Gilpin, H. A. Shuart and H. C. Murray.

Reliable Auto Company, Ayer, Mass.—Capital stock, $25,000; will do a general automobile business. F. H. Williams is the president and W. L. Preble is also interested.

Robart-Carleton Company, Boston, Mass.—Capital stock, $45,000; will deal in fire wagons, police ambulances, etc. Incorporators: O. M. Carleton and Albert Robart.

American Auto Appliance Company, Chicago.—Capital, $200,000. To manufacture and deal in vehicles. Incorporators: E. A. Garvey, C. A. Garvey and F. R. Belt.

Bilbro Auto Company, New York City.—Capital stock, $20,000; will manufacture autos and maintain a garage. Incorporators: J. E. Troy, W. L. Brown and E. Mayer.

Consolidated Rubber Company, New Haven, Conn.—Capital stock, $250,000; will deal in rubber, rubber products or stock and properties of similar companies.

Louis Geyler Company, Chicago.—Capital stock, $60,000; will manufacture automobiles and accessories. Incorporators: L. Geyler, L. R. Geyler and J. L. McNab.

Bendix Company, Oak Park, Ill.—Capital, $200,000. South Dakota corporation. To manufacture automobiles and accessories, 423 South Humphrey avenue.

Badger Four-Wheel Drive Auto Company, Clintonville, Wis.—Capital stock, $45,000. Incorporators: Otto Zanchow, W. A. Benedict and W. H. Finney.

Wadhams Oil Company, Milwaukee.—Increase in capital stock from $350,000 to $500,000; will enter the automobile field with automatic tanks.

White Star Automobile Company, Atlanta, Ga.—Capital stock, $150,000. Incorporators: Clarence Houston, Harry W. Anderson and Frank J. Long.

Pioneer Automobile Exchange, Los Angeles, Cal.—Capital stock, $25,000. Incorporators: J. W. Mitchell, F. E. Edwards, H. F. Duck and R. E. Moir.

SELECTED AUTO PATENTS.

Issue of March 23, 1909.

915,733. Motor Vehicle with Three Axles.—Auguste E. Brillié, Paris, France, assignor to Société Anonyme des Automobiles Eugene Brillié, Paris, France. Filed Nov. 7, 1907.

915,769.—Motor Vehicle.—Russell Huff, Detroit, Mich., assignor to Packard Motor Car Company, Detroit, Mich. Filed May 18, 1908.

915,825. Differential Mechanism.—Bluford W. Brockett, Cleveland, O., assignor, by mesne assignments, to Ross Gear & Tool Company, Lafayette, Ind. Filed Nov. 29, 1905.

915,828. Rotary Engine.—Everett S. Cameron and Forrest F. Cameron, Brockton, Mass. Filed April 14, 1908.

915,839. Attachment for Tire Treads.—Frank A. Fox, New York City, assignor to Fox Metallic Tire Belt Company, New York City. Filed Sept. 9, 1908.

915,840. Tire Tread Attachment.—Frank A. Fox, New York City, assignor to Fox Metallic Tire Belt Company, New York City. Filed Sept. 12, 1908.

915,841. Attachment for Tire Treads.—Frank A. Fox, New York City, assignor to Fox Metallic Tire Belt Company, New York City. Filed Oct. 9, 1908.

915,842. Attachment for Tire Treads.—Frank A. Fox, New York City, assignor to Fox Metallic Tire Belt Company, New York City. Filed Oct. 10, 1908.

915,843. Antiskid Device for Tires.—Frank A. Fox, New York City, assignor to Fox Metallic Tire Belt Company, New York City. Filed Oct. 24, 1908.

915,891. Spark Timer for Internal-Combustion Engines.—Henry Schaake and John T. Cowie, New Westminster, British Columbia, Canada. Filed Feb. 7, 1908.

915,920. Rear Axle Driving Mechanism for Automobiles.—Alexander Winton and Harold B. Anderson, Cleveland, O., assignors to Winton Motor Carriage Company, Cleveland, O. Filed Sept. 7, 1905.

915,954. Pneumatic Tire Mounting.—Charles G. Hawley and Erle K. Baker, Chicago. Filed April 11, 1908.

915,976. Route Indicator for Automobiles.—Frank D. Lindenthaler, Glens Falls, and John Protz, New York City. Filed Nov. 30, 1907.

916,032. Universal Shaft Coupling.—Charles Schmidt, Cleveland, assignor to Peerless Motor Car Company, Cleveland. Filed Jan. 2, 1909.

916,073. Starting Device for Internal Combustion Engines.—Arthur C. Wells, Amityville, N. Y. Filed Oct. 7, 1908.

916,086. Friction Clutch.—Albert N. Woods, Corvallis, Ore. Filed Feb. 4, 1908.

916,103. Carbureter for Explosive Engines.—David J. Cartwright, Boston. Filed Dec. 5, 1904.

916,118. Hub for Automobile Wheels.—Alfred A. De Mars, Lakewood, O., assignor of one-half to Harry Coulby, Lakewood, O. Filed Aug. 25, 1906.

916,214. Controller for Carbureters.—Alfred C. Stewart, Los Angeles, Cal. Filed April 27, 1908.

916,224. Motor Vehicle Drive Gear.—Wald H. Thomas, Taylor, N. D. Filed Dec. 21, 1908.

916,296.—Starting Mechanism for Internal Combustion Engines.—Edward C. Gentzler, Columbus Junction, Iowa. Filed Jan. 5, 1909.

916,312.—Ignition Gear for Internal Combustion Engines.—Rudolf, Zweibrucken, Germany. Filed March 3, 1904.

916,313.—Spark Plug.—A. W. S. Herrington, Madison, N. J. Filed May 7, 1908.

916,390. Terminal Connector.—Charles Cuno, Meriden, Conn., assignor to Connecticut Auto Engineering Corporation, Meriden, Conn. Filed March 28, 1908.